

Kris G. Mattila, Ph.D., P.E.

September, 2004

Office Address:

Michigan Technological University
Department of Civil and Environmental Engineering
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1400 Townsend Drive
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(906) 487-2523
mattila@mtu.edu

Home Address

26346 Sixth Street
PO Box 532
Hubbell, MI 49934
(906) 296-9473

CAREER SUMMARY

Dr. Mattila received a Bachelor of Science in Civil Engineering from Michigan Technological University in 1980 specializing in structures and construction. He received a Master of Engineering (Civil) from Cornell University in 1981 in structures. Upon graduation he was hired as a design engineer by CBI of Oak Brook, IL and for three years designed elevated water tanks, flat bottom water tanks and flat bottom oil tanks. In 1985 he pursued a construction career and was hired as a project engineer for Yalmer Mattila Contracting of Houghton, MI where he worked for nine years. During that time he supervised and estimated numerous projects and was responsible for all safety aspects of the company. In 1993 he returned to school and entered Purdue University to pursue his Ph.D. Dr. Mattila conducted his doctoral work at Purdue University studying resource leveling of linear schedules. In 1997 he returned to his alma mater as an Assistant Professor in the Civil and Environmental Engineering Department specializing in construction engineering and management. He was promoted to Associate Professor in 2003. Dr. Mattila has research interests in construction scheduling, safety, and education. He is currently a Co-PI on a NSF funded project to identify the necessary elements of a Service Sector Engineering curriculum. He has had research projects with the Michigan Department of Natural Resources on the management of watershed rehabilitation and with the Michigan Department of Transportation related to construction scheduling. Dr. Mattila serves on the State of Michigan Construction Safety Standards Commission and has taught several courses for the Michigan AGC. He has been named faculty of the year two times in the Civil and Environmental Engineering Department at Michigan Tech and has been twice nominated for the University Distinguished Teaching Award.

EDUCATION

Ph.D.	1997
School of Civil Engineering	
Area of Construction Engineering & Management	
Purdue University, West Lafayette, IN	
Major Professor: Dr. Dulcy Abraham	
Dissertation Title: Resource Leveling for Linear Schedules: A Mathematical Approach Using Integer Linear Programming	
Professional Master of Engineering (Civil)	1981
School of Civil and Environmental Engineering	
Cornell University, Ithaca, NY	
Emphasis on structural design and analysis.	
Bachelor of Science in Civil Engineering	1980
Department of Civil Engineering	
Michigan Technological University, Houghton, MI	
Emphasis on structural design and construction.	

PROFESSIONAL REGISTRATION

Registered Professional Engineer in Michigan and Illinois
Michigan License Number 6201032205, Registered Since 1985
Illinois License Number 0062-042372, Registered Since 1985

AFFILIATIONS

American Society of Civil Engineers, ASCE
American Society of Civil Engineers Construction Research Council
American Society for Engineering Education, ASEE
Associated General Contractors of America, AGC
Associated Schools of Construction, ASC
Michigan Tech Transportation Institute, MTTI

HONORS

2004 and 2001 Howard E. Hill Chi Epsilon Outstanding Faculty of the Year
Department of Civil and Environmental Engineering
Michigan Technological University
2000 and 1999 MTU Distinguished Teaching Award Nominee
Assistant Professor/ Lecturer Category
1999 Academy of Teaching Excellence, Michigan Technological University, Center for Teaching, Learning, and Faculty Development
1999 Michigan Technological University New Engineering Educator
1999 NSF/Stanford New Century Scholar
1997 Donnan Award, Purdue University
1996 Graduate Assistance in Areas of National Need (GAANN) Fellow
1996 Associated General Contractors Saul Horowitz, Jr. Memorial Graduate Award
1995 Associated General Contractors of Indiana Shuck Award
1994, 1995, and 1996 GE Forgivable Loan
1994 Magoon Teaching Assistant of the Year, Purdue University
1994 Maple Point Foundation Scholarship, Purdue University
1994 Purdue Research Foundation Grant
1980 - 1981 Cornell University Tuition Scholarship
1976 - 1980 MTU Board of Control Scholarship

STATE OF MICHIGAN APPOINTMENT

Dr. Mattila is a member of the Michigan Construction Safety Standards Commission, Department of Labor and Economic Growth, Construction Safety and Health Division and is the sole representative for public employees. Michigan Governor John Engler appointed him in July of 1999 and again in March of 2001. The Construction Safety Standards Commission is responsible for the promulgation of all construction safety standards in Michigan and has the responsibility to ensure that the Michigan Occupational, Safety and Health Administration (MIOSHA) standards are at least equivalent to the Federal standards.

PROFESSIONAL GOALS

Teaching: Dr. Mattila provides students interested in construction as much knowledge that is possible within the construction courses that are available within the Civil and Environmental Engineering Department at Michigan Tech. Since they are graduating as Civil Engineers, he incorporates material from other specialty area courses and encourages them to view these other courses as knowledge that they will need someday as construction professionals. Many of the students in his classes will not pursue careers in the construction industry but will be in some other area of Civil Engineering. As a result he provides them the background that they will need when interacting with contractors. Dr. Mattila's classes are very interactive and discussion oriented as he continually tries to challenge the students. He incorporates active, collaborative teaching methods in order to engage the students in the learning process. These hands on experiences motivate them to learn and understand the construction industry.

Research: Dr. Mattila has focused his research on projects that will have a direct application to the construction industry. In order to gain cooperation and acceptance from practitioners his research has focused on the needs of the owners or contractors. There is a need for better scheduling methods for highway contractors and he believes that linear scheduling may offer the solution and has done research in the area. His watershed research has focused on the project management issues related to all projects. In many cases these issues are overlooked due to the inexperience of individuals involved on watershed projects. As his career continues, he wants to diversify into

safety related research based upon his experience as a commission member and a company safety officer. Specifically, there is a need to improve the education of field personnel, and provide better training techniques and methods.

TEACHING EXPERIENCE

Associate Professor	2003 - Present
Assistant Professor	1997 - 2003
Michigan Technological University	
Department of Civil and Environmental Engineering	

As the only full time tenure track construction faculty in the department since his arrival in 1997, Dr. Mattila has had the responsibility of teaching undergraduate as well as graduate construction courses. The courses taught by Dr. Mattila include the introductory construction course that is required of all Civil Engineering students, estimating, scheduling, senior capstone, and graduate courses in project delivery systems and productivity improvement. He is responsible for the design of all construction courses in the curriculum as a result of the Michigan Tech's change from quarters to semesters in the fall of 2000 and the implementation of the requirement that all Civil Engineering students take the introductory course in construction.

Teaching Assistant	1993-1995
School of Civil Engineering, Purdue University, West Lafayette, IN	
Teaching Assistant for 4 different construction classes and 1 structures class.	

Substitute Lecturer	1993-1997
School of Civil Engineering, Purdue University, West Lafayette, IN	
Substituted on over fifty occasions for various courses.	

University Courses Taught at Michigan Technological University

Dr. Mattila has developed the construction curriculum in the Civil and Environmental Engineering Department. He has taught nine different classes. He has had major input on the design and content of the department's undergraduate Professional Practice course that is taken by all Civil and Environmental Engineering students. He is responsible for the construction curriculum and all issues related to it, including new course development, ABET criteria, transfer credit, and curriculum design. Dr. Mattila incorporates collaborative and team exercises in his classes to engage the students and help them retain information. The in class activities include a term definition exercise, a bidding exercise with bid results, exercises using legos, and card games illustrating important points. He uses his twelve years of industry experience to illustrate important issues throughout his courses. Additionally, he assists other faculty and students, with the estimation of construction costs when that is required in other classes. As a result of these techniques Dr. Mattila has been selected as the outstanding faculty in Civil and Environmental Engineering twice and has been a finalist for the University Distinguished Teaching Award twice. Dr. Mattila has also coordinated (and taught several sessions) in a course for high school math and science teachers during the summer.

Course Number	Course Title Course Descriptions are shown below.	When Taught	Number of Students
<i>Undergraduate Courses</i>			
CE3332	Fundamentals of Construction Engineering	Fall Semester 2004	57 students
		Summer, Trk. A, 2004	6 students
		Spring Semester 2004	63 students
		Fall Semester 2003	62 students
		Spring Semester 2003	66 students
		Fall Semester 2002	63 students
		Spring Semester 2002	68 students
		Fall Semester 2001	59 students
		Spring Semester 2001	85 students
		Fall Semester 2000	125 students

CE4333	Estimating, Planning and Control	Fall Semester 2004	43 students
		Fall Semester 2003	59 students
		Fall Semester 2002	60 students
		Fall Semester 2000	37 students
CE434	Applications of Construction Engineering	Spring Quarter 2000	38 students
		Spring Quarter 1999	29 students
		Spring Quarter 1998	41 students
CE433	Building Systems Design and Analysis	Winter Quarter 1999	40 students
		Winter Quarter 1998	27 students
		Winter Quarter 1997	48 students
CE432	Fundamentals of Construction Engineering	Fall Quarter 1999	51 students
		Fall Quarter 1998	29 students
		Fall Quarter 1997	56 students
CE430	Scheduling of Civil Engineering Projects	Summer Quarter 1999	24 students
		Summer Quarter 1998	15 students
		Summer Quarter 1997	17 students
<i>Graduate Courses</i>			
CE5337	Project Delivery Systems	Spring Semester 2003	14 Students
CE537	Project Delivery Systems	Winter Quarter 1999	26 students
		Winter Quarter 1998	21 students
CE532	Construction Productivity Improvement	Fall Quarter 1998	4 students

Course Descriptions:

CE3332 Fundamentals of Construction Engineering (3 Credits) Fall and Spring

Introduction to concepts required by professionals involved in the construction industry. Includes contracts, bidding, estimating, scheduling, cash flow, safety, labor issues, equipment ownership and productivity.

CE4333 Estimating, Planning & Control (3 Credits) Fall

Examination of the different types of estimates and the function of each type. Drawing interpretation and quantity take-off techniques will be explored leading to the development of an estimate. The relationship between contract specification, drawings, project control and the estimate will be illustrated.

CE 5337 Project Delivery Systems (3 credits) Spring

A study of project delivery, from feasibility through design and construction, focusing on the three contemporary systems: general contracting, design-build, and construction management.

CE430 Scheduling Civil Engineering Projects (2 credits) Fall, Winter, Spring, Summer

Time management techniques including manual and computer-aided network scheduling.

CE432 Fundamentals of Construction Engineering (3 Credits) Fall

Construction engineering concepts and methods used to safely produce quality in the constructed project. Topics include building materials, construction of structural systems, and cost engineering means, methods, and techniques.

CE433 Building Systems Design and Analysis (3 Credits) Winter

Parametric design and analysis of the architectural, mechanical, and electrical systems that are incorporated into constructed facilities. Topics include architectural treatments, heating, ventilation, air conditioning, water supply and drainage, power distribution, lighting, and cost engineering means, methods, and techniques.

CE434 Construction Engineering Applications (3 credits) Spring

The application of civil engineering concepts and principles to project delivery requirements. Emphasis will be on equipment selection and capability analysis, and engineering analysis of construction means, methods, and techniques. Student teams will prepare detailed construction proposals.

CE532 Construction Productivity Improvement (3 credits) Fall

Analysis of current trends of construction productivity. Factors that affect productivity in the construction industry will be examined. Techniques to identify areas of low productivity and corrective action will be presented.

CE 537 Project Delivery Systems (3 credits) Fall

A study of project delivery, from feasibility through design and construction, focusing on the three contemporary systems: general contracting, design-build, and construction management.

Other Teaching

Course Coordinator, ENG 5100, The Engineering Process, Master of Science in Applied Science Education Course, Michigan Technological University, July 2004
Lecturer, Construction in Civil Engineering, Engineering Explorations, Michigan Technological University, October 2004, October 2003, May 2002
Instructor, ENG 5100, The Engineering Process, Master of Science in Applied Science Education Course, Taught sessions on Construction Estimating and Project Delivery Systems, Michigan Technological University, July 2004, June 2002, June 2001
Evaluator, CE4900, Pavement Design, Construction and Materials Enterprise, Bidding Exercise. Assisted in grading the submittals. Assisted in selecting the project. 2004, 2003, 2002, 2001
Guest Lecturer, Basic Estimating, CE4905, Engineering Design Project, Michigan Technological University. October 2003, January 2002, March 2001, October 2000

RESEARCH EXPERIENCE

Associate Professor	2003 - Present
Assistant Professor	1997 - 2003
Department of Civil and Environmental Engineering Michigan Technological University, Houghton, MI	

As a researcher, Dr. Mattila is the first construction faculty at Michigan Tech in recent times to obtain externally funded research with funded projects exceeding \$440,000. His work with the Michigan Department of Transportation (MDOT) focused on problems that MDOT has had with scheduling issues such as schedule accuracy, controlling activity production rates, and the use of linear scheduling. As a result of his research, MDOT allows linear schedules as an acceptable form of schedule and is making revisions to their FieldManager software. His work with the Michigan Department of Natural Resources (MDNR) was the first research funding for Michigan Tech from the MDNR in recent times. This fieldwork focused on the installation of structures on the Otter River to reduce erosion of the banks thereby reducing sediment that was covering spawning beds. As a result of the success of this project it was used as a model for a similar MDNR project on the Rouge River near Detroit. Currently, he is a Co-Pi on a NSF sponsored research project to identify the necessary elements of a Service Sector Engineering curriculum. Dr. Mattila is also involved in educational research related to student retention in the Pavement Design, Construction, and Materials Enterprise.

Graduate Students Advised

Hafiz Hameer, Master of Science in Civil Engineering, Graduation Date: May 2003
Report: Resource Leveling of Linear Schedules Using GAMS
Crystal Payment, Master of Science in Civil Engineering, Graduation Date: December 2002
Report: Management Aspects of the Otter River Project
Mike Bowman, Master of Science in Civil Engineering, Graduation Date: May 2002
Report: A Comparison of MDOT Schedules as a Result of Special Provision for Progress Schedules: FUSP102(G) (I)
Matt Dina, Master of Science in Civil Engineering, Graduation Date: May 2002
Report: Work Item Production Rates for MDOT Projects
Jonathon French, Master of Science in Civil Engineering, Graduation Date: May 2000
Report: Restoration Management Procedures for Upper Peninsula, Michigan Watersheds
Rhett Gronewelt, Master of Science in Civil Engineering, Graduation Date: May 2000
Report: An Evaluation of the Michigan Department of Transportation Construction Scheduling Requirements and an Implementation of Linear Scheduling
Amy Smith, Master of Science in Civil Engineering, Graduation Date: November 1998
Report: A Comparison of the Linear Scheduling Model and the Repetitive Scheduling Method
Nicholas Laeder, Master of Science in Civil Engineering, Anticipated Graduation Date: May 2004
Report: Resource Leveling Criteria: What does your software use?
Ke Li, Master of Science in Civil Engineering, Anticipated Graduation Date: May 2004
Report: Demonstrating Productivity Loss in the Classroom
Adam Gross, Master of Science in Civil Engineering, Anticipated Graduation Date: August 2004
Tessa Pernsteiner, Master of Engineering, Graduation Date: May 2002
Charles Ramos, Master of Engineering, Graduation Date: May 2001
Matt Niskanen, Master International Student, Anticipated Graduation Date: 2003

Graduate Student Committees:

Todd Waurio, Master of Science – Applied Science Education, 2004
Michael Zelenock, Master of Science in Civil Engineering, 2004
James W. Boggs, Master of Science in Civil Engineering, 2003
Laura Neumeier, Master of Science in Environmental Engineering, 2002
James Casper, Master of Science in Civil Engineering, 2002
Timothy DenHartigh, Master of Science in Civil Engineering, 2002
Jonathan Sytsma, Master of Science in Civil Engineering, 2002
Audie MacDonnell, Master of Science in Mining Engineering, 2001
Ryan Klug, Master of Engineering, 2001
Bin Zhang, Master of Science in Operations Management, 1999
A. Tolga Apul, Master of Science in Civil Engineering, 1999
Chad Hewitt, Master of Science in Civil Engineering, 1999
Ee-Lin Foo, Master of Science in Civil Engineering, 1998
Lynn Artmann, Master of Science in Civil Engineering, 1998

Research Assistant

1995 - 1997

School of Civil Engineering
Purdue University, West Lafayette, IN

Kris G. Mattila worked on three different funded research projects as a graduate research assistant. On all three projects he was the lead graduate researcher. As part of the GAAAN fellowship he examined resource use in highway construction, leveling of resources, and the impact on leveling resources on production rates. A mathematical formulation using integer linear programming to level resources was developed. Additionally he was responsible for the idea and initial development of a World Wide Web home page prototype for a Construction Industry Institute project, “Emerging Construction Technologies”. The last project was the development of multimedia applications for the Indiana Department of Transportation. As part of this research he reviewed multimedia-authoring software and make recommendations for purchasing.

EXTERNALLY FUNDED PROJECTS

Principal Investigator: Sheryl Sorby
CO-PI(s) James Friendewey, **Kris G. Mattila**, John Sutherland, & Leonard Bohmann
Funding Source: NSF Engineering Education Program
Project: “Defining a Curriculum for Service Sector Engineering”
Amount of Funding: \$99,976
Completion Date: March 2005

Project Summary: In this project, a team of faculty will conduct a Delphi Study to reach consensus on the curricular requirements for a new discipline-Service Sector Engineering. The Delphi technique was first developed in the business world as a forecasting and consensus-building method and has been subsequently adapted to several curriculum development projects. The individuals participating in the Delphi study will be leaders in the Service Sector. This new curriculum will likely be broadly interdisciplinary, incorporating subject matter from several fields both inside and outside of engineering. Several studies have shown that groups traditionally underrepresented in engineering, particularly women, are attracted to careers, which have an emphasis on serving society. For this reason, the development of a Service Sector Engineering discipline will likely improve the ability to attract a diverse group of learners to engineering studies.

Principal Investigator: **Kris G. Mattila**
Funding Source: Michigan Department of Natural Resources (MDNR)
Project: “Watershed Improvement Center Phase II: A Cooperative Partnership Between the MDNR and MTU”
Amount of Funding: \$150,000
Completion Date: September 2003

Project Summary: Implementation of restoration techniques significantly reduced the possibility of non-point source pollution in the form of sediments from entering the Otter River and ultimately Otter Lake. Integration of numerous MDNR divisions including: Fisheries; Forest Management; Parks and Recreation; and Wildlife along with MTU Departments of Civil and Environmental Engineering, Forestry, and Biology was achieved. The Michigan Tech team focused on managing the project, coordinating all schedules, ordering all materials, obtaining all necessary permits, and on site crew supervision. Restoration production rates for rural watersheds were a result.

Principal Investigator: **Kris G. Mattila**

Funding Source: Michigan Department of Transportation

Project: "A Comparison of MDOT Schedules as a Result of Special Provision for Progress Schedule, FUSP102G"

Amount of Funding: \$80,000

Completed: June 2002

Project Summary: During the 2000 construction season MDOT allowed contractors to submit a Progress Schedule with overlapping or concurrent controlling operations. Prior to this only one activity could be controlling on the Progress Schedules. The objective of this study was to examine if the accuracy of Progress Schedules for MDOT construction projects improved from the 1999 construction season to the 2000 and 2001 season based on allowing concurrent controlling operations.

Principal Investigator: **Kris G. Mattila**

Funding Source: Michigan Department of Transportation

Project: "Work Item Production Rates for MDOT Projects"

Amount of Funding: \$75,000

Completed: June 2002

Project Summary: This research project examined a limited number of MDOT projects to identify and determine if "typical" activity production rates can be determined. Information from the Inspectors Daily Report, contained in electronic FieldManager files, was used to determine production rates. As a result of this project, MDOT intends to have the FieldManager program revised so that production rates can be automatically calculated.

Principal Investigator: **Kris G. Mattila**

Funding Source: Michigan Department of Transportation

Project: "Construction Project Scheduling at MDOT"

Amount of Funding: \$38,493

Completed: December 1999

Project Summary: The Michigan Department of Transportation (MDOT) 1996 Standard Specification for Construction requires contractors to submit a Progress Schedule identifying controlling operations and estimated duration of these operations. Problems existed with the current method of scheduling used by contractors to satisfy MDOT requirements. This project examined MDOT scheduling needs and requirements, what contractors were using to schedule projects, and tested Linear Scheduling on two MDOT projects.

Principal Investigator: **Kris G. Mattila & Dennis L. Johnson**

Funding Source: Michigan Department of Natural Resources (MDNR)

Project: "A Cooperative Watershed Improvement Program Between the MDNR and MTU"

Amount of Funding: \$98,978

Completed: September 2000

Project Summary: This project focused on watershed stewardship and was a key component of the Michigan Conservation Corps Camp (MCCC) at MTU's Ford Forestry Center in Alberta, Michigan. The Alberta MCCC housed and employed approximately 40 participants ranging in age from 18 to 25. The participants became familiar with the concepts of watershed stewardship, including land management, integrated assessments, rehabilitation, and basic construction management techniques. The camp attendees were also involved with the day-to-day tasks of analyzing watersheds for any problems that may exist and then implementing procedures to mitigate and enhance the drainage basin.

Principal Investigator: **Kris G. Mattila**

Funding Source: Faculty Scholarship Grant - MTU

Project: "Road Construction Warranties"

Amount Funded: \$3,000

Completed: June 2000

Project Summary: The objective of this project was to identify some of the research needs of the Michigan Department of Transportation and road contractors working in the state. Topics that were investigated included bonding issues, types of warranties, warranty periods, and what should or should not be warranted.

PUBLICATIONS

Refereed Publications

“Accuracy of Highway Contractor’s Schedules”

By **Kris G. Mattila** and Michael R. Bowman

ASCE Journal of Construction Engineering and Management

Vol. 130, No.5, September/October 2004

“The Pavement Enterprise at Michigan Technological University”

By James W. Boggs, R. Chris Williams, **Kris G. Mattila**, William A. Kennedy, and George Dewey

ASCE Journal of Professional Issues in Engineering Education and Practice

Vol. 130, No .3, July 2004

Pages 197 - 204

“Comparison of Linear Scheduling Model and Repetitive Scheduling Method”

By: **Kris G. Mattila** and Amy Park

ASCE Journal of Construction Engineering and Management

Vol. 129, No. 1, January/February 2003

Pages 56 - 64

“Resource Leveling of Linear Schedules Using Integer Linear Programming”

By: **Kris G. Mattila** and Dulcy M. Abraham

ASCE Journal of Construction Engineering and Management

Vol. 124, No. 3, May/June 1998

Pages 232 -244

“Linear Scheduling: Past Research Efforts and Future Directions”

By: **Kris G. Mattila** and Dulcy M. Abraham

Engineering Construction and Architectural Management

September 1998

Pages 294 - 303

“Determination of Haul Distances and Direction in Mass Excavation”

By Jaeho Son, **Kris G, Mattila** and D.S. Myers

Accepted: To be published in the *ASCE Journal of Construction Engineering and Management*

Waiting for publication date.

“Binary Resource Leveling Model: Activity Splitting Allowed”

By Jaeho Son and **Kris G. Mattila**

Accepted: To be published in the *ASCE Journal of Construction Engineering and Management*

Waiting for publication date.

Manuscripts In Progress

“Grading Individuals in a Team-based Four-year Collaborative Learning Undergraduate Engineering Classes”

By R. Christopher Williams, Jim W. Boggs, and **Kris G. Mattila**

To be submitted to *ASEE Journal of Engineering Education*

“A Comprehensive Time-Cost Trade-Off Model Using Mixed Integer Programming”

By Jaeho Son and **Kris G. Mattila**

To be submitted to *ASCE Journal of Construction Engineering and Management*

“Non-linear Cash Flow Optimization Model

By Jaeho Son, Martin Mack and **Kris G. Mattila**

To be submitted to *Automation in Construction*

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“Rehabilitation Productivity Data for Remote Rivers,”
By **Kris G. Mattila**, Dennis Johnson, and Charles Ramos
ASCE Journal of Water Resources Planning and Management
Under revision

Refereed Conference Proceedings

“Management of the Otter River Project”
By **Kris Mattila**, Dennis Johnson, and Crystal Payment
Proceedings of the 2004 Specialty Conference on Management and Leadership in Construction, Edited by Paul
Chinowsky and Anthony Songer. March 24-26, 2004, Hilton Head, South Carolina. Pg 47-56. Also presented.

“Project Scheduling Accuracy”
By **Kris G. Mattila**, Rhett A. Gronevelt, and Michael R. Bowman
TRB Paper Number 03-3174
Published on CD-ROM.
Presented at the Transportation Research Board 2003 Annual Meeting, January 2003, Washington, D.C.

“Michigan Technological University’s Pavement Enterprise”
Kris G. Mattila, R. Chris Williams, and James W. Boggs,
Published on CD-ROM.
Presented at the 2003 ASCE Construction Research Congress, March 2003, Honolulu, Hawaii

“The Pavement Design, Construction, and Materials Enterprise at Michigan Technological University”
By: James w. Boggs, George R. Dewey, R. Chris Williams and **Kris G. Mattila**
TRB 81st Annual Meeting CD-ROM, Transportation Research Board, Washington, DC, Paper Number TRB 02-4021
January 2002, Washington, D.C.

“Restoration Management Procedures for Michigan’s Upper Peninsula Watersheds”
By Jonathon M. French, Dennis L. Johnson and **Kris Mattila**
*Proceedings of the 2000 Joint Conference on Water Resources Engineering and Water Resources Planning and
Management*, Session 88, Chapter 2, Minneapolis, MN, Rollin H. Hochkiss and Michael Glade, Editors, ASCE.
Reston, VA.

Conference Proceedings

“Road Construction Production Rates”
By **Kris Mattila** and Matt Dina
Proceedings of the 2003 Associated Schools of Construction Great Lakes Region Annual Meeting.
Presented at Associated Schools of Construction Great Lakes Region Annual Meeting November 6 -8, 2003,
Downers Grove, Illinois.

“Michigan Technological University’s Pavement Enterprise Partnership”
By James W. Boggs, R. Chris Williams, Todd Scholz, and **Kris G. Mattila**
To be presented at the ASEE 2004 North Midwest Regional Conference, Hosted by University of Wisconsin-
Milwaukee. October 7 - 9, 2004, Milwaukee, WI.

“Otter River Partnership and Project”
By **Kris G. Mattila** and Dennis Johnson
To be presented at the ASEE 2004 North Midwest Regional Conference, Hosted by University of Wisconsin-
Milwaukee. October 7 - 9, 2004, Milwaukee, WI.

“Mike Mulligan and Mary Anne Come to Class”
By **Kris Mattila** and Raine Wanner
Proceedings of the 2004 Associated Schools of Construction Great Lakes Region Annual Meeting.
To be presented at the at Associated Schools of Construction Great Lakes Region Annual Meeting. October 28 - 30,
2004, Downers Grove, Illinois.

Other Publications

The Pavement Design, Construction, and Materials Enterprise at Michigan Technological University: A Self Study for a Peer Review”

By R. Christopher Williams, C. Robert Baillod, **Kris Mattila** and Jim Boggs
Submitted to the Review Team
October 2002

“Otter River Watershed Yearly Update, 2002”

By **Kris G. Mattila** and Crystal Payment
Submitted to the Michigan Department of Natural Resources, Fisheries Division, Parks and Recreation Division
October 2002

“A Comparison of MDOT Schedules as a Result of Special Provision for Progress Schedule, FUSP102G”

By **Kris G. Mattila** and Michael R. Bowman
Submitted to the Michigan Department of Transportation, Construction and Technology Division
June 2002

“Work Item Production Rates”

By **Kris G. Mattila** and Matthew D. Dina
Submitted to the Michigan Department of Transportation, Construction and Technology Division
June 2002

“Otter River Watershed Yearly Update, 2001”

By **Kris G. Mattila** and Crystal Payment
Submitted to the Michigan Department of Natural Resources, Fisheries Division, Parks and Recreation Division
October 2001

“Otter River Watershed Yearly Update, 2000”

By **Kris G. Mattila** and Charles Ramos
Submitted to the Michigan Department of Natural Resources, Fisheries Division, Parks and Recreation Division
November 2000

“Construction Project Scheduling at MDOT: An Evaluation of the Michigan Department of Transportation Construction Scheduling Requirements”

By **Kris G. Mattila** and Rhett A. Gronevelt
Submitted to the Michigan Department of Transportation, Construction and Technology Division
December 1999

“Otter River Watershed Yearly Update, 1999”

By **Kris G. Mattila** and Jonathon French
Submitted to the Michigan Department of Natural Resources, Fisheries Division, Parks and Recreation Division
December 1999

INDUSTRIAL EXPERIENCE

Project Engineer

3/85-8/93

Yalmer Mattila Contracting, Inc., Houghton, MI

Managed and estimated numerous road construction, underground utility, and building projects. Office duties included deciding on projects to bid; project site evaluation prior to bidding; take off; pricing; analyzing quotations from subcontractors and vendors; and making recommendations for equipment purchases. Specific field experience included job site estimating; pay estimates; change orders; negotiating with owners and subs; coordinating work force of operators, carpenters, ironworkers, and laborers. Wrote and implemented a company safety program, hazard communication program, and a drug testing program. As company Safety Officer, specific duties included reviewing and implementing all OSHA regulations, maintaining all Material Safety Data sheets, responding to OSHA citations, reviewing and implementing Federal Motor Carrier Safety Regulations, and providing safety training for all employees.

Design Engineer 9/81-2/85
Chicago Bridge & Iron Company, Oak Brook Illinois

Designed steel water storage tanks and flat bottom oil storage tanks. Responsibilities included design coordination, drawing review, miscellaneous structural design, and software development. Design required knowledge of API 650, AWWA, and AISC codes as well as foreign codes. Field experience included tank inspection, quality assurance testing, layout, and material management.

Surveyor/Construction Laborer 5/81-8/81
Yalmer Mattila Contracting, Inc., Houghton, Michigan

Engineering Intern 6/80-8/80
Sargent & Lundy Engineers, Chicago, Illinois

Construction Laborer Summers of 76, 77, 78, 79
Yalmer Mattila Contracting, Inc., Houghton, Michigan

CONSULTING

Somero Enterprises, Inc., Houghton, MI
Discussed development of a Continuing Education Course on new techniques of installation and design of concrete flatwork. 1998, 1999

FUNDRAISING/GIFTS

Frequently asked to interact with alumni involved in construction firms as they consider gifts to the University/Department
Solicited and received donations of \$2,900 from contractors and trade organizations to send a team to ASC Great Lakes Bidding Competition in Downer's Grove, IL, November 2003
Solicited and received donations of \$4,700 from contractors and trade organizations (many first time donors to the department) to send ASC/AGC Heavy/Highway Bidding Team to competition in Indianapolis, IN, November 2002
Requested and received a gift of \$1,500 from the Michigan Chapter, Associated General Contractors of America to assist the construction area in CEE, 2003, 2002, 2001, 2000, 1999, 1998
Requested and received SureTrak scheduling software from Primavera Systems, Inc. for use in class and CEE computer labs for use by CEE students, 2000
Responsible for a gift of \$3,000 to the construction area from Granite Construction of Watsonville, CA (first time donor), 2000
Requested and received copies of the Caterpillar Performance Handbooks to be given to students, Caterpillar, Inc. Peoria, IL, 2000, 1999, 1998
Requested and received \$135,000 of estimating software from HCSS, Houston Texas for CEE computer labs for use by CEE students, 1999
Requested and received \$12,000 of estimating books from Richardson Engineering Services, Mesa, AZ for use by CEE students, 1999

CONFERENCES AND PROFESSIONAL MEETINGS ATTENDED

Kiewit Western Professor's Job Tour, Chicago, IL, August 18 & 19, 2004
Michigan Road Builders Association Summer Conference, August 2004, Bellaire, MI
UP Student Contractor Awareness Night (SCAN), attended with 14 students, Michigan Chapter AGC, March 2004, Marquette, MI. Assisted in program preparation.
Upper Peninsula Michigan Construction Safety Day, Michigan Chapter AGC, Upper Peninsula Construction Labor-Management Council, Inc. February 25, 2004, Northern Michigan University, Marquette, MI
ASCE Michigan Section, Upper Peninsula Branch Winter Meeting. February 2004, Houghton, MI
Michigan Transportation Summit, December 3 - 4, 2003, Lansing, MI.
Associated Schools of Construction, 2003 Region III Meeting, November 2003, Downer's Grove, IL
ASCE Michigan Section, Upper Peninsula Branch Annual Spring Meeting. April 2003, Houghton, MI

Upper Peninsula Michigan Construction Safety Day, attended with 6 students, Michigan Chapter AGC, Upper Peninsula Construction Labor-Management Council, Inc. February 25, 2003, Marquette, MI
“Three Routes to Increased Profitability in Your Construction Business & Effective Ways to Immediately Improve Your Bottom Line”. presentation by Bob Langdon. Michigan Chapter AGC , Videoconference from Lansing, MI, January 28, 2003, Marquette, MI. Attended with 6 students.
ASCE National Convention, November 2002, Washington, DC
ASCE Construction Research Council Meeting, November 3, 2002, Washington, DC
Associated Schools of Construction, 2002 Region III Meeting, October 2002, Indianapolis, IN
UP Student Contractor Awareness Night (SCAN), attended with 14 students, Michigan Chapter AGC, September 2002, Marquette, MI
Kiewit Western Professor’s Job Tour, CTA Blueline Project, Chicago, IL, June 25, 2002
ASCE Michigan Section, Upper Peninsula Branch Annual Spring Meeting, May 2002, Houghton, MI
ASCE National Convention, October 12 –14, 2001, Houston, TX
ASCE Construction Research Council Meeting, October 13, 2001, Houston, TX
ASCE Michigan Section, Upper Peninsula Branch Annual Spring Meeting, June 2001, Houghton, MI
Transportation Materials Conference, Michigan Technological University, Transportation Materials Research Center, October, 2001, Houghton, MI
How to Provide Design/Build Services in Michigan, Attended with 6 students, via video conference from Michigan State University, Lansing, MI, Michigan Chapter AGC, March 2002, Hancock, MI
UP Student Contractor Awareness Night (SCAN), Attended with 10 students, Michigan Chapter AGC, AGC – Greater Detroit Chapter, September 2001, Marquette, MI
73rd Annual Conference, Michigan Road Builders Association, January 11-12, 2001, Mt. Pleasant, MI
MDOT Research Summit – 2000, October 20, 2000, Lansing, MI
Student Contractor Awareness Night (SCAN) with 22 students via Video Conferencing at Portage Health Systems, Hancock, MI, Michigan Chapter AGC, AGC – Greater Detroit Chapter, October 2000, Livonia, MI
Construction Safety Day, Michigan Chapter AGC, AGC – Greater Detroit Chapter, Michigan Road Builders, Michigan Department of Consumer & Industry Services (Bureau of Safety & Regulation), March 23, 2000, Lansing, MI
1999 ASEE Annual Conference, June 19, 1999 to June 23, 1999, Charlotte, NC
Michigan Road Builders Association Annual Conference, January 1998, Grand Rapids, MI
New Contracting Practices – Warranties and Performance Related Specifications. University of Wisconsin-Madison, December 1997, Madison, WI
Michigan Chapter AGC’s Annual Educator’s Conference, September 1997, Lansing, MI
ASCE National Convention, October 1997, Minneapolis, MN
ASCE Construction Research Council Meeting, October 13, 1997, Minneapolis, MN
1997 Indiana AGC Construction Educators Conference, Rose-Hulman University, April 1997
ACI Seminar on Troubleshooting Concrete Construction, Indianapolis, IN, November 1995

WORKSHOPS ATTENDED

Michigan Construction Industry Professional Education Council, Educators Workshop, Michigan Chapter AGC, Via Video Conference from Lansing, MI, May 2001
“Teaching the Mass Class”, Faculty Workshop, MTU Center for Teaching, Learning, and Faculty Development, March 16, 2000
“WebCT at MTU”, Workshop for Faculty, Paul Charlesworth, MTU Chemistry Department, MTU Center for Teaching, Learning, and Faculty Development, March 1, 2000
1999 NSF/Stanford New Century Scholars Workshop, Sponsored by the National Science Foundation, August 1999, Stanford University
American Institute of Steel Construction, Construction Management of Steel Construction, March 23 & 24, 1999, Chicago, IL, AISC, Chicago, IL
1999 University Professors’ Workshop, March 14-16, 1999, Chicago, IL, The Masonry Society, Boulder, CO, Masonry Institute of Michigan, Inc., Livonia, MI
MDOT Scheduling Summit, June 16, 1999, Lansing, MI, Presented by Trauner Consulting Services, MDOT, AUC of Michigan, & Michigan Road Builders
MDOT Basic CPM Training, January 13, 2000, Lansing, MI, Presented by Trauner Consulting Services, MDOT
Timberline Precision Standard Estimating Training Class, July 6, 7, & 8, 1998, Midwest Systems Consultants, Inc., Western Springs, IL

State-of-the-Art Concrete Floors Seminar, Alan Face, Naples, Florida, May 28, 1999

UNIVERSITY SERVICE

Administrative duties:

Coordinator, Michigan Tech Transportation Institute, Michigan Technological University, 2003 - present

University:

Senator, CEE Representative on University Senate, 2004

Department Committee Assignments:

Chair, CEE Construction Search Committee, Michigan Technological University, 2002 - present
Member, Promotion, Tenure and Promotion Committee, Civil & Environmental Engineering 2003 - present
Member, Workload and Salary Adjustment Committee, Civil & Environmental Engineering 2003
Member, CEE Transportation Materials Search Committee, Michigan Technological University, 2002
Member, CEE Goals and Rewards Committee, Michigan Technological University, 2001 - 2003
Member, CEE Graduate and Research Committee, Michigan Technological University, 1997 - 2003
Chair, CEE Construction Search Committee, Michigan Technological University, 2000
Chair, CEE Computer Utilization Committee, Michigan Technological University, 1997 - 1999
Member, CEE Construction Search Committee, Michigan Technological University, 1998
Member, CEE Executive Committee, Michigan Technological University, 1997, 1998
Member, Teaching Evaluation Committee, Student Representative, Civil Engineering, Purdue University, 1996-1997

College Committee Assignments:

Member, Master of Engineering Oversight Committee, College of Engineering, Michigan Tech, 1999 - present
Member, ASEE/COE Seminar Series Committee, College of Engineering, Michigan Technological University, 1999

Advisor to Student Organizations:

Advisor, Associated School of Construction Heavy/Highway Bid Competition Team - 2004
Advisor, Associated School of Construction Heavy/Highway Bid Competition Team - 2003
Advisor, Associated School of Construction Commercial Bid Competition Team - 2003
Advisor, Associated School of Construction Heavy/Highway Bid Competition Team - 2002
The Michigan Technological University team of six Civil Engineering students finished second in Region III competition in their first year of competition.
Advisor, MTU Student Chapter Associated General Contractors (AGC), 1998 - present

Other Service:

Participant, Career Center Corporate Advisory Board Roundtable Discussion, Michigan Tech Career Center, Houghton, MI, April 2004.
Speaker, Construction of the Portage Lake Lift Bridge, CE5990, Civil Engineering Graduate Seminar, Michigan Technological University, January, 2002
Panel Member, Interested in Grad School?, sponsored by Chi Epsilon, Michigan Technological University, November 2001, October 1999 and October 1997
Master of Ceremony, Chi Epsilon Initiation Banquet, Michigan Technological University, Department of Civil and Environmental Engineering, Houghton, MI. March 2003
Master of Ceremony, Order of the Engineer Ceremony, Michigan Technological University, April 2004, April 2002, December 2001, May 2001, December 2000, November 1999, May 1999,
Master of Ceremony, M.A.X.I.M.A.S., Civil and Environmental Engineering Department Student Organization's Recognition Banquet, Michigan Technological University, April 2001, April 2003
Judge & Abstract Reviewer, Graduate Student Council, Spring Poster Session, Michigan Technological University, April 2001
Judge, Graduate Student Council Fall Poster Session, Michigan Technological University, November 2000
Senior Exit Interviews, Civil and Environmental Engineering, Michigan Technological University, 2004, 2003, 2002, 2001, 1999, and 1998
Keynote Speaker, Order of the Engineer Ceremony, Michigan Technological University, May 1998
Graded Coop Reports for Cooperative Engineering Laboratory, Michigan Technological University, 1999, 1998

Panel Member, Have you thought about Graduate School?, ITE Student Chapter, Michigan Technological University, October 1999 & 1998
Guest Speaker, What is Construction Engineering?, ASCE Student Chapter Meeting, Michigan Technological University September 1997

PROFESSIONAL SERVICE

Vice President, Upper Peninsula Branch, American Society of Civil Engineers, (ASCE), 2003 to present.
Member, Michigan Research Action Team, 2004
Journal Reviewer
ASCE Journal Of Construction Engineering and Management
Society of Mining Engineers (SME) Mining Engineering Journal
Paper Reviewer
Proceedings of the 2004 Specialty Conference on Management and Leadership in Construction, Edited by Paul Chinowsky and Anthony Songer. 2 papers reviewed, November 2003
Moderator, Afternoon Session, 2002 U.P. Bridge & Culvert Conference, September 2002, Marquette, MI
Facilitator, AGC Supervisory Leadership Series (STS), Contractors and Subcontractors Working Together to Create a Trouble-Free Job, Videoconference to Marquette, MI, Michigan Chapter, Associated General Contractors of America, Hancock, MI, February 2001
Facilitator, AGC Supervisory Leadership Series (STS), Building Positive Relationships Between Construction Supervisors and Customers, Videoconference to Marquette, MI, Michigan Chapter, Associated General Contractors of America, Hancock, MI, February 2001
Panel Member Invited, "Ethics for the Construction Professional: A Panel Discussion", Michigan Chapter AGC 55th Annual Meeting, Mt. Pleasant, MI, December 1, 2000
Facilitator, AGC Supervisory Training Program (STP), Unit 8, Managing The Project, Videoconference to Lansing, MI and Traverse City, MI, Michigan Chapter, Associated General Contractors of America, Houghton, MI, April 2000
Participant, STP Advisory Council, Michigan Chapter, Associated General Contractors of America, Videoconference to Lansing, MI, Hancock, MI, March 2000
Instructor, AGC Supervisory Training Program (STP), Unit 6, Cost Awareness and Production Control, Michigan Chapter, Associated General Contractors of America, Hancock, MI, July 1999
Facilitator, AGC Supervisory Training Program (STP), Unit 2, Oral and Written Communication, Michigan Chapter, Associated General Contractors of America, Houghton, MI, October 1999

COMMUNITY SERVICE

Member, Dollar Bay – Tamarack City School Board, Elected June 2002, Vice President 2004 to present
Invited Speaker, Safety Day for High School Students, Houghton High School, Sponsored by Superior Rent-All, March 16, 2004
Invited Speaker, Construction of the Portage Lake Lift Bridge, Miscowaubik Club Family Night, November 13, 2002, Calumet, MI
Invited Speaker, Construction of the Portage Lake Lift Bridge. 4th Thursday in History, Sponsored by the Keweenaw National Historic Park and the MTU Archives and Historical Collections, August 22, 2002, Hancock, MI
Invited Speaker, Safety Day for High School Students, Houghton High School, Sponsored by Superior Rent-All, March 6, 2002
Assistant Coach, Portage Lake Little League, 2002, 2001, 2000, 1999, 1998, 1997
Assistant Coach, Dollar Bay – Tamarack City School 4th, 5th and 6th Grade Basketball Team, 2003, 2002, 2001
Assistant Coach, Dollar Bay – Tamarack City School 7th and 8th Grade Basketball Team, 2003, 1999, 1998, 1997
Sunday School Teacher, South Range Apostolic Lutheran Church, 4th and 5th Grade, 1997 through present
Building Bridges, An Overview of Civil Engineering, a Presentation at the E. B. Hollman School Sleepover Night, April 30, 1999

REFERENCES

C. Robert Baillod, Ph.D., P.E.
Professor and Department Chair
Civil and Environmental Engineering
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Dr. Baillod has been the Chair of the Department since I was hired at Michigan Tech.

William M. Bulleit, Ph.D., P.E.
Professor
Civil and Environmental Engineering
Michigan Technological University
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Houghton, MI 49931
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Dr. Bulleit was the Associate Chair for several years, has served on numerous committees with me, and has been a mentor for me in many areas.

Dulcy M. Abraham, Ph.D.
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Dr. Abraham was my Ph.D. advisor.