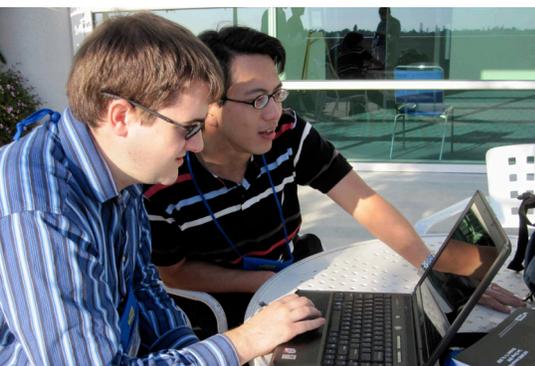


# Research Assistantship (RA) opportunities available !

## The University of Illinois at Urbana-Champaign Department of Civil and Environmental Engineering



### Rail Transportation and Engineering Center (RailTEC)



# RESEARCH AREAS

#### Advanced Track Engineering

- Integration of Railroad Vehicle-Track Interaction and Dynamics Models
- Development of Evaluation and Planning Models for Track Maintenance
- Innovations to Improve Track System Safety and Performance

#### Railway Track Components

- Mechanistic Design Approach for Crossties and Fastening Systems
- Failure Mode Analysis and Optimization of Components and Materials
- Modeling, Structural Analysis, and Structural Design of Railway Track Components

#### Safety & Risk

- Hazardous Materials Rail Transportation Risk Analysis
- Tank Car Safety Design Statistical Analysis and Optimization
- Train Accident Statistical Analysis & Big Data Analytics

#### Rail Network Capacity & Systems Analysis

- Capacity Models for Mixed-Use Freight and Passenger Rail Corridors
- Optimal Infrastructure Expansion Strategies for Increased Rail Capacity
- Network Effects and Interaction of Terminal and Mainline Delay

#### Rail Operational and Energy Efficiency

- Passenger Rail Energy Consumption and Emissions Relative to Competing Modes
- Economic and Operating Impacts of Implementing New Locomotive Technologies
- Optimization of Investments to Improve Passenger Rail Corridor Performance

#### High-Speed & Passenger Rail

- Illinois 220-mph HSR Feasibility Study
- Shared Passenger-Freight Rail Corridor Technical Challenges

#### Faculty Contact Information

##### Christopher P.L. Barkan

Professor, George Krambles Faculty Fellow  
Executive Director of RailTEC  
Ph: 217-244-6338  
cbarkan@illinois.edu

##### C. Tyler Dick

Senior Research Engineer  
Director of Education-RailTEC  
Ph: (217) 300-2166  
ctdick@illinois.edu

##### J. Riley Edwards

Senior Lecturer, Research Scientist  
Ph: (217) 244-7417  
jedward2@illinois.edu

##### Tsung-Chung Kao

Professor  
Director of International Programs  
Ph: (217) 300-2133  
tckao@illinois.edu

##### Conrad Ruppert, Jr.

Senior Research Engineer  
Director of Research-RailTEC  
Ph: (217) 300-2132  
rupperts@illinois.edu

##### M. Rapik Saat

Research Assistant Professor  
Ph: (217) 333-6974  
mohdsaat@illinois.edu

RailTEC: <http://ict.illinois.edu/railroad/index.php>

Faculty: <http://ict.illinois.edu/railroad/CEE/publications.php>

For more information please contact

##### LB Frye

Program Coordinator  
Ph: (217) 244-4999  
E-mail: [lbrye@illinois.edu](mailto:lbrye@illinois.edu)