

COVER LETTER

Position Title: Transportation Engineer

To Whom It May Concern:

I am interested in applying for Transportation Engineer since I strongly believe that my educations, skills and working experience match the requirements of this job. My unique combination of traffic safety expertise, supervision and project management experience, program development skills, first-hand transportation software proficiency, advanced data analytical & modeling specialty is sure to be an asset.

As a P.Eng. with Professional Engineers Ontario (PEO), I'm working as senior road safety engineer for Fireseeds North Infrastructure Corporation (FNI), Winnipeg, Manitoba (transferred to part-time casual basis since Sept 15, 2017). I work on video conflict analysis (VCA), in-service road safety review (ISRSR) and road safety audit (RSA) major projects and also mentor junior engineers for FNI. I'm also working remotely from Toronto as adjunct researcher after resigning as the Chief Research Scientist of Research Institute of Highway Ministry of Transport, China (RIOH). I worked on Big Data statistics, Smart City initiatives, traffic risk assessment, operational control, and smart freeway. I've applied data mining, data visualization and AI approaches to develop models to predict real-time traffic crash risks. Before January 2015, I was acting senior traffic safety engineer of City of Edmonton, Alberta, Canada. My work was to lead all engineering master projects, supervise engineering team, coordinate with all stakeholders, and represent my office in committees for Concept Plans, Community Traffic Management Plans and guidelines developments. From July 2012 to September 2013, I worked as traffic safety predictive analyst of City of Edmonton. This job was to conduct predictive analytics and data mining, develop safety countermeasures to assist transportation services, safety campaign, education and police enforcement of the city. This position was also in the center of responding public and internal requests, establishing key performance indicators (KPIs), managing data system, reporting and presenting, and supervising collision data entry team for the city.

While pursuing my second PhD degree at Ryerson University from 2008 to 2013, I completed thesis research while participating in four engineering projects funded by Transport Canada and Ministry of Transportation Ontario, including: Warrants of Roundabouts, Apply HSM to Ontario, Adopt CMF into Canadian Roads and Development of OPF to Ontario Highways. My own works included field survey, data collection, data analysis, modeling, prediction, calibration and R&D of the applicative programs such as macros of Level 1 Warrant Curves, Level 2 Calculation Spreadsheet for roundabout warrant and applicative spreadsheets assisting Ontarian and Canadian engineers to apply Collision Modification Factors (CMFs). I applied all kinds of design, simulation, modeling and programming tools including Synchro, HCS+, SAS, R and VBA in Excel. I also completed significant parts of technical writing of reports. Besides, I cooperated with MTO project administrators and was involved in project processing. I also worked as Teaching Assistant for courses of Transportation Engineering, Traffic Operation and Management and Civil Engineering Systems.

From 1996 to 2008, as a professor in College of Architecture and Civil Engineering, Beijing University of Technology, I worked on transportation engineering projects and taught eight transportation courses. I led three projects as principal researcher in safety and planning areas. Besides, I led at least 4 projects as co-principal researcher and participated in more than 20 other projects. Among them, in transportation planning area, I was mainly dedicated to projects such as highway network planning, freeway feasibility study, regional planning, traffic impact analysis, and neighborhood traffic planning. My major projects in transportation safety areas included European Commission funded project of EU-Asia network in competence enhancement on traffic safety on roads, World Bank funded project to develop road safety audit (RSA) guidelines, nation-wide highway database development and highway safety manual edition.

I look forward to meeting with you and discussing how my skills and background will be an asset for you. I thank you in advance for taking the time to review my resume, as following. Please feel free to contact me at any time with regards to setting up an interview in the near future.

Sincerely,

Yongsheng Chen, Ph.D., P.Eng.

P.S. I'm a Permanent Resident of Canada.

RESUME

- ✧ Senior transportation engineer, supervisor and researcher
- ✧ Over 20 years' experience in the fields of transportation safety, emerging transportation technologies, ITS solutions, Smart City initiatives, operation & maintenance, planning and facility design
- ✧ 45 journal and peer-reviewed conference papers
- ✧ Proficient at data analytics & programming by Python/R/SAS/ BI/IHSDM, simulation and capacity analysis by SYNCHRO/HCS+, performance monitoring by KPIs, planning by TransCAD, design by AutoCAD, and optimization by MATLAB
- ✧ Excellent oral and writing skills in English and Mandarin

EMPLOYMENT HISTORY

Senior Road Safety Engineer Apr 2017-current (part-time since Sept 2017)
Fireseeds North Infrastructure Corporation (FNI), Winnipeg, Manitoba

Adjunct Researcher Apr 2017-current (working remotely from Toronto)
Research Institute of Highway Ministry of Transport, China (RIOH)

Chief Research Scientist Jan 2015-Apr 2017
Research Institute of Highway Ministry of Transport, China (RIOH)

Acting Senior Traffic Safety Engineer Sept 2013- Jan 2015
Office of Traffic Safety, City of Edmonton

Traffic Safety Predictive Analyst Jul 2012- Sept 2013
Office of Traffic Safety, City of Edmonton

Research & Teaching Assistant Sept 2008-Jul 2012
Ryerson University, Toronto, Ontario

Associate Professor Jan 2004-Sept 2008
Traffic Research Center, Beijing University of Technology, China

Assistant Professor Jun 1996- Dec 2003
Traffic Research Center, Beijing University of Technology, China

EDUCATION

Ph.D. Civil Engineering June 2013
Ryerson University

Ph.D. Transportation Planning and Management June 2001

M.S. Transportation Engineering

June 1996

Beijing University of Technology

B.S. Transportation Engineering

June 1993

Beijing University of Technology

PROFESSIONAL ORGANIZATIONS

- ✧ Member of Institute of Transportation Engineers
- ✧ Member of Canadian Association of Road Safety Professionals

SKILLS AND EXPERIENCE

Video Conflict Analysis, In-Service Road Safety Review & Road Safety Audit (2000-current)

- ✧ Collision data analysis
- ✧ Video conflict analysis (VCA)
- ✧ In-Service Road Safety Review (ISRSR)
- ✧ Road Safety Audit (RSA)
- ✧ Detailed Engineering Review and Diagnostics
- ✧ Developments on countermeasures

Traffic Operation, Traffic Risk Assessment & Smart Freeway (2014-current)

- ✧ R& D on real-time risk assessment on traffic flows
- ✧ R&D on traffic operational control strategy
- ✧ R& D on smart freeway management and control programs, including tolling system

Engineering Analytics, Measure Developments & B/A Assessments (2012-current)

- ✧ Data analytics, measure developments and assessments on concept plans, designs, rehabilitations and traffic and speed controls
- ✧ Space-temporal risk prioritization and site selection for improvements
- ✧ Before-after evaluation for countermeasures, e.g., design changes, automated devices

Highway Safety Research

- ✧ Four MTO/TC transportation research projects (2008-2013)
- ✧ EU-Asia network in competence enhancement on traffic safety on roads funded by European Commission (2005-2008)
- ✧ Highway Safety Improvement Project funded by World Bank (2001-2004)
- ✧ R&D of Highway Safety Database (funded by DOC, China) (2005-2008)

Statistical Modeling

- ✧ Time Series (SARIMA) models (2012-current)
- ✧ Data mining & machine learning (2012-current)
- ✧ Integrating prior knowledge into before-after evaluation (2008-2012)
- ✧ Modeling, calibrating of Safety Performance Functions (2008-2012)

- ✧ Crash prediction model (funded by DOC, China) (2003-2006)

Macro & Software Developing

- ✧ Applicative Spreadsheet Tools, by VBA at Excel (2008-2012)
- ✧ Reconstruction of crash process, by language of Java (2002)
- ✧ Highway Safety Design Platform, by language of Visual Basic (1997-2001)
- ✧ Traffic signal simulation, by language of C (1993)

Planning, Survey and Feasibility Study

- ✧ Over 15 traffic impact analysis projects (2001-2008)
- ✧ Highway network modeling and traffic demand analysis (2002-2008)
- ✧ Benefit-cost analysis (three freeway and two arterial projects) (2003-2005)
- ✧ OD Survey and Estimation of OD Matrix (four freeway projects) (2005-2008)
- ✧ Transit passenger flow Prediction (One light rail project) (1996)
- ✧ Demand analysis and layout design of long-distance transit terminals (1995-1997)

**** References Available Upon Request ****