

Matthew Battifarano

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EDUCATION

CARNEGIE MELLON UNIVERSITY

PHD ADVANCED INFRASTRUCTURE SYSTEMS

Expected May 2022 | Pittsburgh, PA

MS ADVANCED INFRASTRUCTURE SYSTEMS

Expected May 2019 | Pittsburgh, PA

MS MACHINE LEARNING

Expected May 2021 | Pittsburgh, PA

UNIVERSITY OF CHICAGO

BA MATHEMATICS

Concentration in Applied Mathematics

Minor in Computational Neuroscience

Graduated June 2012 | Chicago, IL

COURSEWORK

GRADUATE

Machine Learning

Convex Optimization

Probabilistic Graphical Models

Logical Foundations of Cyber-Physical Systems

Autonomous Vehicle Technology & City Planning

Urban Systems Modeling

Civil Systems Investment Planning & Pricing

Teaching Assistant:

Geographic Information Systems

UNDERGRADUATE

Statistical Models & Methods

Advanced Numerical Analysis

Honors Combinatorics

Algorithms

Mathematical Methods for the Biological Sciences

Teaching Assistant:

Calculus

Mathematical Methods for the Biological Sciences

PUBLICATIONS

TRANSPORTATION RESEARCH PART C |
submitted 2018

Predicting surge pricing of ride-hailing companies
in real time

M. Battifarano and S. Qian

JOURNAL OF NEUROSCIENCE | 2015

Shared Sensory Estimates for Human Motion
Perception and Pursuit Eye Movements

T. Mukherjee, M. Battifarano, C. Simoncini, and L.
C. Osborne

AWARDS

2018 Dwight D. Eisenhower Transportation Fellow

RESEARCH

MOBILITY DATA ANALYTICS LAB | PHD STUDENT

August 2017 — present | Pittsburgh, PA

- Developing a simulation-based optimization aimed at reducing traffic congestion by offering route choice incentives to autonomous vehicles and/or connected vehicles
- Built real-time predictive model of surge pricing in ride hailing networks like UBER and Lyft

OSBORNE LAB, UNIVERSITY OF CHICAGO | RESEARCH SPECIALIST

June 2012 — August 2014 | Chicago, IL

OSBORNE LAB, UNIVERSITY OF CHICAGO | STUDENT RESEARCH ASSISTANT

June 2011 — June 2012 | Chicago, IL

- Spearheaded a project to characterize oculomotor decision rules as a function of target motion predictability using a custom-built game of pong as the visual stimulus
- Designed experimental visual stimuli and data analysis methods in MATLAB and Python
- Prepared analysis, visualizations, and written material for posters, manuscripts, and grant proposals

EXPERIENCE

TRANSIT SYSTEMS | CONSULTANT

July 2017 | Brisbane, Australia

- Guided Transit Systems during their acquisition and integration of the Bridj software
- Compiled and organized documentation of the Bridj software and optimization engine
- Developed hiring strategy and role descriptions
- Prepared Bridj software for use and further development in Australia

BRIDJ | ASSOCIATE DATA SCIENTIST

November 2014 — May 2017 | Boston, MA

BRIDJ | SCIENCE INTERN

September 2014 — November 2014 | Boston, MA

- Implemented an evolutionary algorithm to allocate a fleet of vehicles on paths through a city-sized stop network to efficiently serve origin-destination requests
- Implemented an adaptive large neighborhood search (Ropke and Pisinger, 2006) to route vehicles over a set of origin-destination requests
- Implemented a hierarchical clustering algorithm over origin destination pairs (Zhu and Guo, 2014) first on trip data derived from cellphone clusters and subsequently on employment travel data from the US Census
- Built a mode choice model to predict ridership based on census data, our own ridership data, and characteristics of public transit between origins and destinations
- Prepared analysis and visualizations for investor and partner presentations, helping to secure the 2016 pilot program with the Kansas City Area Transportation Authority