

Virod "Ta" Chiraphadhanakul

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With background in computer science and operations research, I love applying data-driven approaches to identify and tackle challenging problems in a business context. Additionally, I enjoy creating visual analytics tools that enable non-technical people to easily understand complex data and make better decisions.

EDUCATION

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|--------------------|---|--|
| 2013 (expected) | Massachusetts Institute of Technology , Cambridge, MA PhD Candidate in Operations Research | GPA: 5.0/5.0 |
| 2010 | Massachusetts Institute of Technology , Cambridge, MA Dual SM in Transportation and Operations Research | GPA: 5.0/5.0 |
| 2007 | Chulalongkorn University , Bangkok, Thailand Bachelor of Engineering (Computer Engineering) | GPA: 3.97/4.00 (Graduated 1st in a class of 700 students) |

SKILLS

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|-----------------|--|
| Computer | Programming Languages Java, Python, C++, C, C#, .NET Data Management Hadoop, MapReduce, Hive, MySQL Mathematical/Statistical Tools R, Matlab, S-Plus, SAS, CPLEX, OPL Studio, Gurobi Web Technologies JavaScript, HTML, CSS Visualization Libraries d3.js, Processing |
| Courses | data mining, statistics, demand modeling, linear optimization, network optimization, integer programming and combinatorial optimization, probability, discrete stochastic processes, operations management, and logistics and supply chain management |

EXPERIENCE

Insight Data Science, Palo Alto, CA June 2012 - Present

Data Science Fellow

- Developed an analytics tool [Python, MySQL, JavaScript, d3.js] for evaluating the impact of messages broadcasted through social media. Analyzed data obtained through Twitter API and implemented a recommendation system that suggests a time to broadcast a message based on its content to maximize impressions.

MIT, Operations Research Center, Cambridge, MA 2007 - Present

Research Assistant

My research is focused on optimizing large-scale transportation systems. [Java, Processing, R, MySQL, CPLEX]

Vehicle-sharing system design:

- Processed publicly available transit schedules and modeled a transit graph for a major city.
- Formulated and solved various network optimization problems over the transit graph to evaluate the impacts of different designs of bike/car-sharing systems on trip times, commuter choices, and emission.

Limited-stop bus service design:

- Analyzed large amount of public transit turnstile data to understand demand and usage pattern in a major city.
- Developed an optimization model together with an efficient solution approach to determine a limited-stop bus service design that minimizes total passenger travel time.
- Performed statistical analyses to understand the impacts of different service attributes on potential benefits of limited-stop services.

Robust airline schedule planning:

- Created a visualization tool to facilitate analyses of complex airline operational data.
- Built optimization models for schedule adjustment to minimize delays and disruptions based on historical data.
- Evaluated the resulting schedules through simulation using various performance metrics.

FedEx Services, Pricing Science and Engineering, Memphis, TN

Summer 2011

Revenue Management Intern

- Developed analytics tools [Java, Processing, SAS, Teradata] that visualize different performance metrics (e.g., load factors and freight densities) of flights in FedEx's network and show how packages shipped by different services are routed throughout the network.
- The tools facilitate analysis of both historical data and solutions from optimization models to gain insights into current network performance and understand behavior of the optimization models.

AWARDS

- 2012 **Overall Best Visualization**, Hubway Visualization Challenge [R, Python, Javascript, d3.js]
- 2012 **Finalist**, Exploration & Exploitation Challenge 3 (sponsored by Yahoo! Research), 29th International Conference on Machine Learning 2012. The task is to build an algorithm for recommending news articles on a website that efficiently balances the tradeoff between "exploitation" of the article with the highest expected click through rate (CTR) and "exploration" of other articles to learn more about their CTRs. [Java]
- 2012 **Finalist**, ROADEF/EURO Challenge 2012 (sponsored by Google). The challenge is to improve machine usage by reassigning processes to different machines. Moving a process incurs costs and is limited by many hard constraints. Huge problem sizes (more than 100 million decision variables) and the very limited solving time of 5 minutes pose the biggest difficulties in solving this problem. [C++, Gurobi]
- 2011 **UPS Doctoral Fellowship**, awarded solely on academic merit to a student who conducts doctoral research in logistics, supply chain, and freight transportation, MIT Center of Transportation and Logistics.
- 2011 **Professional Colloquium**, INFORMS Conference on Business Analytics and Operations Research 2011
- 2011 **Semifinalist** (Transportation Category), MIT Clean Energy Prize, a venture creation and innovation competition open to all United States university students.
- 2010 **Third Prize**, 2010 Railway Application Section Problem Solving Competition, Institute for Operations Research and the Management Sciences (INFORMS). The objective is to determine a feasible locomotive fueling plan that minimizes total fuel-related expenses over the planning horizon. [Java, Cplex]
- 2007 **Schoettler Fellowship**, granted to first-year graduate students on the basis of merit, MIT.
- 2006 **Outstanding Academic Achievement**, awarded to the top-scoring engineering student of each university by Engineering Institute of Thailand under H.M. the King's Patronage (EIT).
- 2006 **Outstanding Academic Achievement**, awarded to the best engineering student, Chulalongkorn University.
- 2006 **Merit award**, "Best mobile game – Symbian" category, Thailand Animation and Multimedia exhibition.
- 2005 **Winner Overall Score**, DTAC & Nokia iAwards 2005, a mobile application development contest organized jointly by Nokia and DTAC, Thailand's second largest mobile communications provider.

LEADERSHIP

- 2012 **Organizing Committee Chair**, Transportation@MIT Data Hack-a-thon 2012
- 2012 **Student Coordinator**, ORC IAP Seminar 2012
- 2011 **Director**, MIT-Harvard Thai Night 2011
- 2008 **Social Chair**, Thai Student Association at MIT
- 2006 **Chief Editor**, 2006 Yearbook, Faculty of Engineering, Chulalongkorn University
- 2004 **President of Engineering Students**, Faculty of Engineering, Chulalongkorn University

PUBLICATIONS

Chiraphadhanakul and Barnhart, **Incremental Bus Service Design: Combining Local and Limited-Stop Bus Services**, working paper (2012).

Chiraphadhanakul and Barnhart, **Robust Flight Schedules through Slack Re-Allocation**, submitted for publication (2011).

Chiraphadhanakul and Figueroa, **2010 RAS Problem Solving Competition: A Locomotive Refueling Problem**, Technical Report (2010).

PRESENTATIONS

Regulating Greed over Time for Yahoo! Front Page News Article Recommendations, International Conference on Machine Learning 2012, Edinburgh, Scotland

Incremental Bus Service Design, 2011 INFORMS annual meeting, Charlotte, NC

Finalist Presentation - RAS Problem Solving Competition, 2010 INFORMS annual meeting, Austin, TX

Robust Slack Allocation in Airline Schedules, 2010 INFORMS annual meeting, Austin, TX

Robust Airline Scheduling: Insights from an Empirical Analysis, 2009 INFORMS annual meeting, San Diego, CA