

[Feb. 2019]

Research Interests

Optimization, Transportation, Large Scale Systems, Data-Driven Decision Making, Machine Learning.

Education

- 2014-2019** **Massachusetts Institute of Technology (MIT)**, Cambridge, MA
(expected) Candidate for PhD in Operations Research
GPA: **5.0/5.0**, Advisor: Prof. Patrick Jaillet, Online Optimization and Learning Research Group
Thesis: Dynamic Vehicle Routing and Scheduling Optimization with Real-time Updates.
- 2009-2014** **National Technical University of Athens**, Greece
Degree in Electrical and Computer Engineering (5-year study program – MSc Equivalent)
GPA: **9.82/10** (top honors, top 1%)
Thesis: Efficient Algorithms for Calculating the Largest Empty Cube in 3D Spaces with Obstacles.

Research and Work Experience

- 2014–Present** **MIT**, Laboratory for Information and Decision Systems, Cambridge, MA – *Research Assistant*
Advisor: Prof. Patrick Jaillet
- Conducting research in the area of vehicle routing and scheduling; developing optimization, modeling and data-driven techniques.
 - Projects include optimization of vehicle sharing systems, covering aspects such as load-rebalancing and demand estimation.
- 2018** **Microsoft Research**, Redmond, WA – *Research Intern*
(May-Aug) Mentor and Collaborators: Ishai Menache, Krishna Chintalapudi, Luke Marshall
- Collaborated with Microsoft Real Estate and Facilities on event scheduling optimization.
 - Project involved vehicle routing, crew scheduling, coordination of suborganizations and real-time information.
- 2017** **Google**, Los Angeles, CA – *Software Engineering Intern*
(May-Aug) Host: David Pritchard
- Joined a team focused on providing advertisement traffic forecasts to advertisers on YouTube and AdWords.
 - Developed optimization algorithms to achieve more accurate predictions, increase reliability of models, and improve quality analysis workflows.
- 2016** **Microsoft Research**, Redmond, WA – *Research Intern*
(May-Aug) Mentors: Mohit Singh, Ishai Menache
- Developed fast algorithms to produce schedules and routes for resources to satisfy customer requests at various locations and under multiple constraints.
 - Currently deployed in **Microsoft Dynamics 365 Field Service** for businesses to use.
- 2014** **Helic, Inc.**, Marousi, Greece – *R&D Intern*
(Feb-July) Helic provides Electronic Design Automation software enabling the design of high-performance analog/RF transceivers and high-speed SoC designs.
- Collaborated in the R&D team on a project for capacitance extraction aiming to achieve more accurate circuit simulation.
 - Developed and implemented an algorithm for the calculation of the largest empty cube in 3D spaces with obstacles.

Papers and Patents

Konstantina Mellou, Patrick Jaillet. Dynamic Resource Redistribution and Demand Estimation: An Application to Bike Sharing Systems. Submitted to Operations Research.

Konstantina Mellou, Patrick Jaillet. Demand Estimation in Bike Sharing Systems: A Linear Programming Approach. Working paper. 2018.

Konstantina Mellou, Ishai Menache, Krishna Chintalapudi, Luke Marshall, Patrick Jaillet. Complex Event Scheduling. Working paper. 2018.

Ishai Menache, Mohit Singh, Bishara Kharoufeh, Chris Mossell, Janeth Guerrero Gomez, Konstantina Mellou, Kyle S. Young. Resource Scheduling for Field Services. Patent number 20180165618, filed December 14, 2016, issued June 14, 2018.

Honors and Awards

- 2017** **Honorary Award**, Technical Chamber of Greece (TEE-TCG)
Awarded to the top graduates of all Schools of Engineering in Greece
- 2014** **Limmat Stiftung**, Limmat Stiftung Foundation, Switzerland, and National Technical University of Athens, Greece
Awarded to top 3 graduates of the School of Electrical and Computer Engineering
- 2011-2013** **Paris Kanellakis Award**, National Technical University of Athens, Greece
Awarded to the best student in Computer Science of the School of Electrical and Computer Eng.
- 2012** **Thomaidion Award**, National Technical University of Athens, Greece
Awarded to top 3 performing students of the School of Electrical and Computer Engineering (out of more than 1500)
- 2010, 2012, 2013** **Karydogiannis Award**, National Technical University of Athens, Greece
Awarded to top performing students of the School of Electrical and Computer Engineering
- 2010** **Honorary Scholarship**, State Scholarships Foundation, Greece
Awarded to top performing academic students in Greece
- 2008 (2005)** **3rd (resp. 2nd) Prize in National Mathematics Competition**, Hellenic Mathematical Society, Greece

Teaching and Mentoring

Teaching:

- 2018 (Fall)** 6.251/15.081: Introduction to Mathematical Programming – *Teaching Assistant*
- 2018 (Jan.)** 15.S60: Computing in Optimization and Statistics – *Teaching Assistant*
- 2018 (Jan.)** 15.S41: Software Tools for Business Analytics – *Instructor*

Mentoring:

- 2018 (Feb-Aug)** Co-mentored two MIT MBAn (Master of Business in Analytics) students on their Capstone project “IBM Watson – Machine Teaching: How to efficiently train a bot in the customer support space”.

Service

INFORMS Annual Meeting 2018 Invited Session “Where to Next? Dynamic Fleet Optimization for Urban Transportation” – *Session Chair*

Transportation Science – *Referee*

MIT LIDS Seminar – *Student Liaison*

Presentations and Panels

2019	Dynamic Redistribution of Bike Sharing Systems, Talk, LIDS Student Conference – <i>Presenter</i>
2018	Dynamic Redistribution of Bike Sharing Systems, Talk, INFORMS Annual Meeting 2018 – <i>Presenter</i>
2018	How internships prepare you for your career, Panel, LIDS Mentoring Panel – <i>Invited Panel Speaker</i>
2018	Dynamic Redistribution of Bike Sharing Systems, Poster, ORC 65 th Anniversary – <i>Presenter</i>
2016	Lost Demand and Redistribution in Bike Sharing Systems, Talk, INFORMS Annual Meeting 2016 – <i>Presenter</i>

Leadership

2017 (Spring)	MIT Operations Research Center , Cambridge, MA – <i>Seminar Coordinator</i> Invited speakers from academia and industry, scheduled their visit in its entirety, including meetings and social events. Responsibilities included seminar publicizing and budget planning.
2015, 2017, 2018, 2019	MIT Hellenic Students' Association , Cambridge, MA – <i>Officer (2015), Secretary (2017, 2018, 2019)</i> Participate in event organization to introduce the MIT society to the Greek culture and strengthen the bonds in the Boston Greek community (biggest event to date hosted 550 people).

Skills

<u>Languages:</u>	Greek (native), English (fluent), French (fluent), Chinese (basic)
<u>Programming:</u>	Experienced: C, C++, C#, MATLAB, R, Julia (with Gurobi) Familiar with: HTML/CSS, PHP, MySQL, ML, Haskell, Prolog, Java, Python

Other Activities

2015-Present	ActionAid – <i>Volunteer</i>
2015-2016	MSPCA-Angell , Boston, MA – <i>Volunteer</i> Non-profit organization for animal protection and adoption, advocacy, and humane education.
2009-2010	Private Tutoring , Athens, Greece – <i>Volunteer tutor</i> Prepared high school student to pass the university entrance examinations.