CV

Maria Dimakopoulou
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EDUCATION

STANFORD UNIVERSITY – Management Science & Engineering Department **6/2015 – 12/2018,**
Ph.D. in Reinforcement Learning & Causal Inference **Stanford, CA**
Advisors: Professor Benjamin Van Roy & Professor Susan Athey
Dissertation: Coordinated Exploration in Concurrent Reinforcement Learning
GPA 4.27/4.30

- Recipient of the Stanford "Outstanding Academic Achievement at the Doctoral Level" Award.
- Recipient of the "Arvanitidis in Memory of William K. Linvill" Stanford Graduate Fellowship.

STANFORD UNIVERSITY – Management Science & Engineering Department **6/2015 – 6/2016,**
M.Sc. in Operations Research **Stanford, CA**
GPA 4.23/4.30

- Recipient of the Stanford "Outstanding Academic Achievement at the Masters Level" Award.
- Graduated 1st of the class.

NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA) **2009 – 2014,**
M.Sc. and B.Sc. in Electrical Engineering & Computer Science Department **Athens, Greece**
Computer Science & Computer Systems Major, Management & Finance Minor
GPA 10.00/10.00

- Graduated 1st of the class with the highest GPA in the 200 year history of NTUA.
- Ranked nationwide 1st in the 2009 NTUA EE/CS entry exams with a score 19920/20000.

PROFESSIONAL EXPERIENCE

NETFLIX RESEARCH **12/2018 – present**
Tech Lead Senior Research Scientist – Product ML Research Team, Data & Insights **Los Gatos, CA**

- **Adaptive Experimentation Tech Lead (1/2020 – present)**
  - Growing a cross-functional team of researchers, engineers and data scientists to deliver new experimentation capabilities as an alternative to A/B testing, ranging from automated ML-based cell selection to adaptive cell allocation rates during-test to valid inference from adaptively collected data post-test.
  - The adaptive experimentation technology has been validated with successful pilots on Netflix test areas, establishing its ability to reach the same conclusions as an A/B test with fewer test members and better test member experience, even in the presence of non-stationarity and delayed outcomes. It is now in beta-testing in the area of copy optimization and soon in additional areas such as globalization and personalized rankers.
  - Have gained alignment and resources from org leads to move adaptive experimentation to full-production.

- **Causal Bandits Research Area Lead (2/2021 – present) & Senior Research Scientist (8/2019 – 2/2021)**
  - Pioneered the causal bandit investment at Netflix and have been leading initiatives on the design and adoption of novel online algorithms and offline estimators that lie in the intersection of causal inference and bandits.
  - Established the usage of causal bandits across Netflix by authoring internal educational memos and

implementations and rallying support from product teams to A/B test this methodology. Proposed methods have been adopted or A/B tested in these Netflix product areas: personalized message selection, personalized title selection on Netflix billboard, personalized title selection on Netflix rows and UI personalization.
    - Coordinating research directions as planned projects advance and new opportunities arise, identifying opportunities for collaboration across researchers and teams, co-authoring papers accepted in top-tier ML conferences and serving as co-organizer or invited speaker in multiple internal forums and external venues.
    - Currently leading a cross-functional effort of authoring a causal ML reference guide that establishes common terminology across teams and educates on state-of-the-art causal ML methods from a Netflix-application lens.

- **Messaging Personalization Senior Research Scientist (12/2018 – 8/2019)**
    - Designed the bandit algorithm behind the first personalized message selection system at Netflix The algorithm resulted in a significant A/B test win and was deployed in production. It was based on the double selection method and optimized towards learning the causal effect of each message to each member's satisfaction.
    - Designed and published a slate bandit algorithm for personalized message creation that decomposes learning across the combinatorial slate space in a scalable way using marginal posterior sampling.
    - Proposed a reinforcement learning approach for multi-day message policy optimization based on Q-learning.

MICROSOFT RESEARCH **6/2018 – 9/2018,**
NYC Machine Learning Lab **New York City, NY**

- **Value-Function Decomposition in Reinforcement Learning:** Developed an approach to break down complex RL tasks into many simpler ones that can be learned faster by multiple agents (with Miro Dudik, Rob Schapire).
- **Off-Policy Evaluation for Slate Contextual Bandits:** Developed a range of new off-policy estimators that exhibit better bias-variance properties than existing ones in slate contextual bandit settings (with Miro Dudik)**.**

SALESFORCE (KRUX) **6/2016 – 9/2016,**
Data Science Team **San Francisco, CA**

- **Multi-Touch Attribution (MTA) Research:** End-to-end design and implementation of Krux's Attribution product, involving game theory, causal estimation and budget constraint optimization. Launched the product to a group of high-profile clients of Krux and led Krux's submission to the Mobile Marketing Association's MTA RFI.

GOOGLE RESEARCH **11/2014 – 4/2015,**
Ad Exchange Optimization Team **New York City, NY**

- **Auction Reserve Price Optimization:** Developed a dynamic pricing algorithm which yielded annual revenue lift for Real-Time Bidding in the scale of hundreds of millions of dollars and extended internship and fully-launched it in the production Ad Exchange Dynamic Pricing Pipeline with special praise from the Google Ad Exchange VP.
- **BIN-TAC Auction Mechanism:** Collaborated with USC Professor Hamid Nazerzadeh on the analysis and implementation of the BIN-TAC auction with revenue lift potential of 5% in Ad Exchange.

GOOGLE RESEARCH **7/2013 – 11/2013,**
Operations Research & Optimization Team **Paris, France**

- **Linux Kernel Performance Monitoring Subsystem Scheduling:** Led collaboration of the Operations Research team with the Linux Production kernel team to improve scheduling of hardware events on the processors' counters in the kernel. Designed an optimal algorithm, increasing by 18% the measurement accuracy and the hardware utilization, which was launched in the Google production kernel.
- **Intel PMU Erratum:** Led collaboration of the Operations Research team with the Linux Production team and Intel

to solve the 3-year unsolved measurement corruption erratum of Intel Performance Monitoring Unit. Designed a dynamic scheduling protocol solving the erratum, which was launched in the Google production kernel and was contributed to Linux kernel 4.1 benefitting 1000s of Intel machines.

- **Earliness-Tardiness Scheduling:** Designed linear & mixed integer programming models for convex and non-convex cost optimization scheduling problems in Google Technical Infrastructure and Google Geo projects.

GOOGLE RESEARCH **8/2012 – 11/2012,**
Operations Research & Optimization Team **Paris, France**

- **Multi-Trip Vehicle Routing:** Designed heuristics and meta-heuristics for any generic routing model which produce 43% higher quality first solutions and find the optimal solutions 45% faster. The heuristics were launched in production and are run daily benefiting Google Geo related projects.
- **Constraint Programming:** Designed open-source models for the NP-hard Radio Link Frequency Assignment problem teaching advanced usage of Constraint Programming methods in and out of Google.

PUBLICATIONS & PREPRINTS

- **Online Multi-Armed Bandits with Adaptive Inference**
  Dimakopoulou, Ren, Zhou – *arXiv:2102.13202; NeurIPS 2021 submission*
- **Post-Contextual-Bandit Inference**
  Bibaut, Dimakopoulou, Kallus, Chambaz, van der Laan – *arXiv:2106.00418; NeurIPS 2021 submission*
- **Risk Minimization from Adaptively Collected Data: Guarantees for Supervised and Policy Learning**
  Bibaut, Kallus, Dimakopoulou, Chambaz, van der Laan – *arXiv:2106.01723; NeurIPS 2021 submission*
- **Sequential Causal Inference in a Single World of Connected Units**
  Bibaut, Petersen, Vlassis, Dimakopoulou, van der Laan – *arXiv:2101.07380*
- **Doubly Robust Off-Policy Evaluation with Shrinkage**
  Su, Dimakopoulou, Krishnamurthy, Dudik – *ICML 2020; US Patent 16/657,533*
- **ADMM SLIM: Sparse Recommendations for Many Users**
  Steck, Dimakopoulou, Riabov, Jebara – *WSDM 2020*
- **Marginal Posterior Sampling for Slate Bandits**
  Dimakopoulou, Vlassis, Jebara – *IJCAI 2019*
- **On the Design of Estimators for Bandit Off-Policy Evaluation**
  Vlassis, Bibaut, Dimakopoulou, Jebara – *ICML 2019*
- **Balanced Linear Contextual Bandits**
  Dimakopoulou, Zhou, Athey, Imbens – *AAAI 2019*
- **Scalable Coordinated Exploration in Concurrent Reinforcement Learning**
  Dimakopoulou, Osband, Van Roy – *NeurIPS 2018*
- **Coordinated Exploration in Concurrent Reinforcement Learning**
  Dimakopoulou, Van Roy – *ICML 2018*
- **Estimation Considerations in Contextual Bandits**
  Dimakopoulou, Zhou, Athey, Imbens – *arXiv:1711.07077; NeurIPS 2017 ML & Causal Inference workshop*
- **Market-Based Dynamic Service Mode Switching in Virtualized Wireless Networks**
  Dimakopoulou, Bambos, Valdez-Vivas, Apostolopoulos – *IEEE PIMRC 2017*
- **Reliable and Efficient Performance Monitoring in Linux**
  Dimakopoulou, Eranian, Koziris, Bambos – *ACM/IEEE Supercomputing 2016*

HONORS & AWARDS

- **Forbes 30 Under 30 Greece (2019)**
  presented to "the brightest young entrepreneurs, leaders, and stars of Greek nationality worldwide".
- **Stanford University Outstanding Academic Achievement at the Doctoral Level Award (2019)**
  presented annually to the top graduating Ph.D. student of Stanford, MS&E.
- **Stanford University "Arvanitidis in Memory of William K. Linvill" Graduate Fellowship (2015 – 2018)**
  awarded annually to 1% of Stanford PhD students for excellence in research and study.
- **Onassis Foundation Graduate Fellowship (2015 – 2018)**
  awarded annually to the best performing Ph.D. students of Greek nationality worldwide.
- **Stanford University Outstanding Academic Achievement at the Masters Level Award (2016)**
  presented annually to the top graduating M.Sc. student of Stanford, MS&E.
- **National Technical University of Athens Dean's Council "Papakyriakopoulos" Honorary Award (2015)**
  presented annually to the best performing student in Mathematics coursework across all NTUA.
- **Limmat Stiftung Foundation Academic Excellence Award (2015)**
- **Intel Honorary Award (2014)**
  presented "in recognition for the creativity and drive in modifying the Linux Performance Monitoring Subsystem to improve the PMU accuracy in 1000s of Intel machines".
- **Google Women Techmakers – Anita Borg Memorial Fellowship (2014)**
  presented "for excellence in computer science and technology, outstanding academic achievement, leadership and community involvement".
- **Google Spot Bonus Excellence Award (2013)**
  presented for "multiple accomplishments and outstanding achievements in the Operations Research team".
- **Google Peer Bonus Volunteering Award (2013)**
  for "promoting careers in engineering to high-school girls and assisting Google's diversity efforts".
- **National Technical University of Athens Dean's Council "Thomaidion" Honorary Award (2011 – 2015)**
  for excellence in academic performance across all NTUA departments.
- **State Scholarship Foundation of Greece Fellowship (2011 – 2015)**
  for excellence in academic performance in NTUA's Electrical Engineering & Computer Science department.
- **NTUA Dean's Council "Agoniston Polytechniou" Honorary Award (2011)**
  for ranking nationwide 1st in the entry exams of NTUA's Electrical Engineering & Computer Science.
- **Triantafyllidis Foundation, Greek Finance Ministry & Greek Education Ministry Fellowship (2011)**
- **Eurobank EFG & Greek Education Ministry "Great Moment for Education" Honorary Award (2010)**
  for ranking nationwide 1st in the entry exams of NTUA's Electrical Engineering & Computer Science.
- **26th National Mathematics Olympiad Silver Medal (2009)**
- **Hellenic Mathematical Society Silver Medal at the "Euclid" Contest (2008)**
- **6th European Union Science Olympiad Bronze Medal (2008)**
- **Hellenic Mathematical Society Bronze Medal at the "Euclid" Contest (2005 – 2007)**
- **Greek Educational Society High-School Excellence Award (2006 – 2009).**

OTHER

Languages: English, Greek, French
Interests: Tennis, Swimming, Travelling, Art
Legal Status: US Permanent Resident, Greek Citizen