

CV

Maria Dimakopoulou

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EDUCATION

STANFORD UNIVERSITY

Ph.D. in Reinforcement Learning & Causal Inference

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.

6/2015 – 12/2018,

Stanford, CA

STANFORD UNIVERSITY

M.Sc. in Operations Research

GPA 4.23/4.30

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

6/2015 – 6/2016,

Stanford, CA

NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA)

M.Sc. and B.Sc. in Electrical Engineering & Computer Science Department

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.

9/2009 – 6/2014,

Athens, Greece

PROFESSIONAL EXPERIENCE

SPOTIFY

Personalization Mission

1/2022 – present

Los Gatos, CA

- **Engineering Product Area Lead of Home Personalization (11/2022 – present)**
Leading Home Personalization Engineering at Spotify, a 60-people organization that is responsible for generating, ranking and distributing personalized content recommendations across music, podcasts and audiobooks on the Spotify’s homepage of 489 million listeners in a way that maximizes listeners’ joy while supporting Spotify’s strategic needs. The 10 teams of Home Personalization Engineering innovate in a range of ML disciplines – contextual bandits, reinforcement learning, attention-based deep networks, multi-objective optimization & causal inference – as well as ML infrastructure, data engineering and backend systems at scale.
- **Engineering Squad Group Lead of Home Construction (1/2022 – 11/2022)**
Led the Home Construction sub-organization within Home Personalization Engineering at Spotify. My organization spanned ML engineering, ML research, backend engineering and data engineering and consisted of 2 teams; the Home Ranking team (responsible for developing a unified ranker for all content on its way to Spotify’s Homepage) and the Home Assembly team (responsible for optimizing the personalized placement of organic and promotional content on Spotify’s Homepage, in a way that is conducive to user satisfaction and Spotify business needs).

NETFLIX RESEARCH

Product ML Research, Data Science & Engineering

12/2018 – 1/2022

Los Gatos, CA

- **Adaptive Experimentation Tech Lead (1/2020 – 1/2022)**

Built a cross-functional team of researchers, engineers and data scientists to deliver new experimentation capabilities for Netflix as an alternative to A/B testing: (1) automated ML-based cell selection, (2) adaptive cell allocation rates during-test, (3) valid inference from adaptively collected data post-test, (4) ML-based short-term proxy metrics of long-term metrics to call A/B tests faster.

- **Causal Machine Learning Research Area Lead (8/2019 – 1/2022)**

Pioneered the causal ML investment at Netflix and established its usage across messaging personalization, Netflix billboard personalization and UI personalization. Drove Netflix Research's initiatives in the intersection of causal inference & contextual bandits, designing novel algorithms and driving their adoption by Netflix Personalization Engineering. Authored internal Causal Learning reference guide, co-authored several papers accepted in top-tier ML conferences and served as co-organizer or invited speaker in multiple internal forums and external venues.

- **Senior Research Scientist of Messaging Personalization (12/2018 – 8/2019)**

Designed the algorithm behind the first personalized message selection system at Netflix, which resulted in one of the highest A/B test wins of the year and was deployed in production. The bandit-style algorithm was optimized towards learning the causal effect of each message to each member's satisfaction.

MICROSOFT RESEARCH

NYC Machine Learning Lab

6/2018 – 9/2018,

New York City, NY

- **Visiting Scientist:** Developed an approach for value-function decomposition in Reinforcement Learning allowing the breakdown of complex RL tasks into many simpler ones that can be learned faster by multiple RL agents (in partnership with Miro Dudik, Rob Schapire). Developed a range of new off-policy estimators that exhibit better bias-variance properties than existing ones in slate contextual bandit settings (in partnership with Miro Dudik).

SALESFORCE

Data Science Team

6/2016 – 9/2016,

San Francisco, CA

- **Visiting Scientist:** Designed and implemented end-to-end the Salesforce DMP (f.k.a. Krux) Multi-Touch Attribution algorithm, involving game theory, causal estimation & budget constraint optimization. Launched it to a group of high-profile clients. Featured in Mobile Marketing Association's review for its 800 member-companies.

GOOGLE

Google Research

8/2012 – 4/2015 (intermittent)

Paris, France & New York City, NY

- **Software Engineer in Ad Exchange Optimization Team (11/2014 – 4/2015, New York City, NY)**

Developed a dynamic pricing algorithm that yielded annual revenue lift for Google's Real-Time Bidding in the scale of hundreds of millions of dollars. Launched it in the production Ad Exchange Dynamic Pricing Pipeline, with praise from the Google Ad Exchange VP. Collaborated with USC Professor Hamid Nazerzadeh on the analysis and implementation of the BIN-TAC auction with revenue lift potential of 5% in the Ad Exchange.

- **Software Engineer Intern in Operations Research & Optimization (7/2013 – 11/2013, Paris France):**

Led collaboration of the Operations Research team with the Google Linux Production Kernel 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 Google production kernel & open-sourced in Linux kernel 4.1 benefitting 1000s of Intel machines. Improved scheduling of hardware events on the processors'

counters in the kernel by designing an optimal algorithm that replaced the greedy scheduler in the Google production kernel and increased measurement accuracy and hardware utilization by 18%.

- **Software Engineer Intern in Operations Research & Optimization (8/2012 – 11/2012, Paris France):**
Designed linear & mixed integer programming models for convex & non-convex cost optimization scheduling problems (a.k.a. Earliness-Tardiness Scheduling) in Google Technical Infrastructure and Google Geo. Designed heuristics and meta-heuristics for generic Multi-Trip Vehicle Routing problems which produced 43% higher quality solutions and found the optimal solutions 45% faster. The heuristics were launched in Google Geo production.

PUBLICATIONS & PREPRINTS

- **Calibrated Recommendations as a Maximum Flow Problem**
Abdollahpouri, Nazari, Gain, Gibson, Anderton, Dimakopoulou, Carterette, Lalmas, Jebara – *WSDM 2023*
- **Society of Agents: Regrets Bounds of Concurrent Reinforcement Learning**
Chen, Dong, Bai, Dimakopoulou, Xu, Zhou – *NeurIPS 2022*
- **Online Multi-Armed Bandits with Adaptive Inference**
Dimakopoulou, Ren, Zhou – *NeurIPS 2021*
- **Post-Contextual-Bandit Inference**
Bibaut, Dimakopoulou, Kallus, Chambaz, van der Laan – *NeurIPS 2021*
- **Risk Minimization from Adaptively Collected Data: Guarantees for Supervised and Policy Learning**
Bibaut, Kallus, Dimakopoulou, Chambaz, van der Laan – *NeurIPS 2021*
- **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

- **Spotify 20/20 R&D Senior Leadership Program (2022)**
selected in Spotify's R&D senior leadership 2022 cohort aiming to "create readiness for Director+ role within Spotify R&D" (20 managers selected annually from the 3k+ people R&D division of Spotify).
- **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).**