David Marn, `https://github.com/cdavm`

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EDUCATION

Bachelor of Science, Electrical Engineering and Computer Sciences
University of California Berkeley, May 2017

WORK EXPERIENCE

Software Engineer - Google *March 2018 - March 2022*

- ML model privacy analysis (e.g. membership inference attacks, secret sharer tests)
- Contibuting to TF Privacy: `https://github.com/tensorflow/privacy`
- Differential privacy consulting for product teams
- Contributing to foundational differential privacy libraries: `https://github.com/google/differential-privacy`

Software Development Engineer I - Amazon.com *July 2017 - March 2018*

- Working on automating orders for small businesses and enterprise customers.
- Owning the entire stack, from UX and back-end to integration testing and deployment.
- Optimized back-end caching mechanisms to reduce p50 latency by 17%.

Student Developer - Google Summer of Code 2016 *Summer 2016*

- Designed data-driven algorithms to optimize frequency allocation for wireless devices
- Algorithm implemented on nodewatcher, an open source monitoring platform
- nodewatcher is currently running on 378 nodes that were set up by volunteers
- Used the Django framework with PostgreSQL along with git VCS
  `https://summerofcode.withgoogle.com/projects/#5073374858444800`

Full Stack Developer - Stanford University (Social Algorithms Lab) *Spring 2016 - Fall 2016*

- Designed and built a web application to test iterative decision making
- Experiments had over 2500 participants and have shown convergence for L2 utility functions
- Developed with the Meteor framework (based on Node.js)
- Deployment integrated with Amazon AWS and Amazon MTurk platforms
  `https://github.com/cdavm/harp`

Full Stack Developer - UC Berkeley (Wireless Foundations Lab) *Fall 2014 - Spring 2016*

- Built a crowdsourcing platform to enhance training set quality for machine learning algorithms
- 71% of agents performed optimally under our mechanism (versus 53% for state-of-the-art)
- Developed with Meteor, SpaceBars with a MongoDB database and supports Docker.
- Research funded by Intel and published in SCUGC 2015
  `https://www.github.com/cdavm/bts`

PUBLICATIONS & POSTERS

- **A general purpose transpiler for fully homomorphic encryption.** Gorantala, Shruthi, et al. *arXiv preprint arXiv:2106.07893 (2021).*
- **Collaborative optimization for collective decision-making in continuous spaces.** Garg, N., Kamble, V., Goel, A., Marn, D., & Munagala, K. (2017, April). *In Proceedings of the 26th international conference on world wide web (pp. 617-626).*
- **The Square-Root Agreement Rule for Incentivizing Objective Feedback in Online Platforms.** Kamble, V., Shah, N., Marn, D., Parekh, A., & Ramchandran, K. (2019) *Available at SSRN 3488831.*
- **Truth Serums for Massively Crowdsourced Evaluation Tasks.** Vijay Kamble, David Marn, Nihar Shah, Abhay Parekh, Kannan Ramachandran. *Submitted to JAIR. Preprint available on arXiv.*
- **Collaborative Optimization for Collective Decision-making in Continuous Spaces.** Nikhil Garg, Vijay Kamble, Ashish Goel, David Marn, Kamesh Munagala. *Submitted to WWW 2017.*
- **IncentiCrowd: A Novel Crowdsourcing Data Collection Platform.** David Marn, Nihar Shah, Vijay Kamble, Abhay Parekh, Kannan Ramchandran. Poster presented at the UC Berkeley EECS Undergraduate Research Symposium.
- **The Quest to Truthfulness: Testing Truth Serums for Massively Crowdsourced Evaluation Tasks.** David Marn, Nihar Shah, Vijay Kamble, Abhay Parekh, Kannan Ramchandran. Poster presented at Techcon 2016 in Austin, TX.

AWARDS & FELLOWSHIPS

- James H. Eaton Memorial Scholarship 2016
- Ad Futura Fellowship 2013-2017
- Warren Y. Dere Design Award 2017

SELECTED COURSEWORK

- Machine Learning (CS 189)
- Algorithms, Intractable Problems (CS 170)
- Communication Networks (EE 122)
- Stochastic Processes in Systems (EE 226A)
- Operating Systems (CS 162)
- Digital Signal Processing (EE 123)

LANGUAGES AND FRAMEWORKS

- *Frameworks & Technologies*: TensorFlow, Google Flume (similar to Apache Spark), git
  Languages (listed by proficiency): Python, Java, Typescript