Gabriel Montague

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EDUCATION

University of California, Berkeley Expected Graduation: May 2019
Master of Engineering, Data Science & Systems Program

Harvard College, Cambridge Massachusetts Graduated May 2018
Bachelor of Arts, Honors, Computer Science GPA: 3.61/4

TECHNICAL SKILLS

- 10 years of experience with **HLSL** and 3D modeling, rendering, animation in Autodesk Maya
- 8 years of experience with **C++** using various graphics and application frameworks, STL and Boost libraries
- 7 years of experience with **Python** and **JavaScript**
- Other languages – **MATLAB** (2 years), **Objective C** (3 years), **C#** (2 years), **OCaml** (2 years), **PHP**, **Swift**

WORK EXPERIENCE

University of California, Berkeley
Capstone Engineer and Researcher Current
- Capstone project: Research and application of second-order algorithms for training of deep neural networks.
- Engineering and realization of second-order algorithms designed to significantly enhance the established first-order training methods widely used in machine learning.

Massachusetts Institute of Technology
Researcher Spring, Summer 2018
- Worked with IBM and MIT researchers on the development of deep learning systems to curate exabytes of Earth subsystem data for the purposes of visualization and natural language querying, so that both scientists and non-scientists can gain a better understanding of the Earth's changing environment.
- Research in topic modeling, text generation, and ontology-learning, question-answering, and information retrieval.
- Built information retrieval system on top of Amazon Web Services (AWS), relying on the EC2, Elasticsearch (ES), and SageMaker services.

Harvard University
Teaching Fellow Fall 2017
- Teaching Fellow for CS121: Introduction to Theoretical Computer Science – in first iteration with new curriculum
- Created section notes, automatic grading tools, and teaching tools including nandpl.org, a web interpreter for a theoretical language. Helped to write problem sets and notes for main lecture.

MathWorks, Inc.
Intern in Engineering Development, GPU Coder Team Summer 2017
- Software engineer on small team developing GPU Coder: a MATLAB to CUDA compiler later launched in R2017b
- Designed and implemented MATLAB code directives ("pragmas") allowing users to fine-tune the parallelization of algorithms, ultimately translating into CUDA kernel code.
- Research on benchmarking and analysis of various cutting-edge automatic parallelization techniques.

Park & Pedal (parkandpedal.org)
Lead Mobile and Web Developer Summer 2015, 2016
- Python development on the Park & Pedal web application and upcoming mobile app for cyclists.
- Used Amazon Web Services, Google Map APIs and Django for back-end. Used AngularJS for front-end.

Whoop, Inc.
Web Development Intern Summer 2015
- Back-end and front-end development in Javascript on the Whoop fitness web platform. Focused primarily on user analytics and data presentation using Google Analytics, D3, Node.js, AngularJS, and Jenkins CI.

Massachusetts Institute of Technology, Aeronautics and Astronautics Dept.
Intern Research Assistant in Man Vehicle Laboratory Summer 2012, 2013, Winter 2014-15

- Assisted research via MEL scripting and 3D modeling for visualization of space suit motion-capture data. Technique used to aid subsequent research in Man Vehicle Laboratory.
- Cited contributor to International Astronautical Congress research paper and presentation.

INDEPENDENT RESEARCH & PROJECTS

- **Virtual Coach** – Developer of platform used by Harvard athletes to update their training logs automatically. Syncs data from incoming SMS messages, fitness devices, and GPS watches into a unified log using various APIs.
- **Time Calculator** – Creator of iPhone app written in Objective C, now with over 40,000 downloads on the Apple App Store. Developed for athletes to calculate with time intervals (timecalculatorapp.com).
- **Other projects** – Matrix row-reduction tool in browser-embedded C++, Music notation gesture recognition system for composers using touch screens, Level Builder for game developers creating 3D scenes.

EXTRACURRICULARS

- **Harvard University Varsity Track and Field** – Two time Ivy League Heptagonal Champion (first team All Ivy) in the 4x800m relay. Fourth fastest 1000m runner in Harvard University school history, 10th fastest 1500m runner. Career-best in the indoor mile of 4:07.40, career-best in outdoor 1500 of 3:48.23.
- **Classical Pianist and Composer** – Winner of National Association for Music Education Young Composers (NAfME) National Competition. Finalist in ASCAP Young Composers' Competition. Trained at New England Conservatory (NEC) Preparatory School and with Justin Casinghino, MIT Music Department.