Sébastien M. R. Arnold

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Education

Ph.D. Computer Science

University of Southern California **August 2017 - Present**

BS. Computer Science & BA. Mathematics (with honors)

University of Southern California **August 2014 - August 2017**

BS. Computer Science (dropout)

ETH Zürich **September 2011 - August 2013**

High-School Summer Semester

Stanford University **June 2011 - August 2011**

Maturité Fédérale

Gymnase Auguste-Piccard **August 2008 - August 2011**

Research

Shalab - USC **August 2017 - Present**

Doctoral Student - Advisor: Prof. Fei Sha

Research topic: Optimization and Reinforcement Learning.

Mila - U. de Montreal **June 2018 - September 2018**

Visiting Researcher - Host: Prof. Ioannis Mitliagkas

Research direction: Momentum in Optimization.

Brain-Body Dynamics Lab - USC **July 2016 - August 2017**

Undergraduate Researcher - Advisor: Prof. Francisco Valero-Cuevas

Investigating deep reinforcement learning algorithms for simulated, robotic, and cadaveric hand control.

Simulation and Modelling Lab - USC **April 2016 - August 2017**

Undergraduate Researcher - Advisor: Prof. Chunming Wang

Investigating second order optimization methods for distributed deep learning.

Information Science Institute - USC **January 2015 - December 2015**

Research Assistant - Advisors: Prof. Greg Ver Steeg, Prof. Itay Hen

Comparison of classical and adiabatic quantum optimization of Ising models, and introduction to quantum machine learning.

Computational Social Science - ETHZ **June 2012 - January 2014**

Research Assistant - Advisor: Dr. Stefano Balietti

Development of multi-user, real-time sociological experiments. Project received appraisal from the European Commission and fundings for coming years.

Industry

Nervana Systems **August 2015 - August 2016**

Algorithm Intern - Advisor: Dr. Arjun Bansal

Development of distributed deep learning library and research project in distributed deep reinforcement learning.

Schneeberger AG **May 2014 - November 2014**

Lead Engineer

Development of a financial management tool for an international usage. Engineering leader in a team of 4.

Tooski **January 2009 - Present**

Founder

Development of the leading French-speaking skiing website, and its magazine *Angulation*.

Teaching

University of Southern California **Fall 2018**

Teaching assistant

Leading discussion sections, designing project assignments, and guest lecture on reinforcement learning.

Writings

Writing Distributed Applications with PyTorch *S. Arnold*, 2017, PyTorch Tutorials

Shapechanger: Environments for Transfer Learning *S. Arnold, T.K. Pun, T.J. Denisart, F.J. Valero-Cuevas*, 2017, SoCal Robotics Symposium

Accelerating SGD for Distributed Deep Learning Using an Approximated Hessian Matrix *S. Arnold, C. Wang*, 2017, ICLR Workshop

A Performance Comparison between TRPO and CEM for Reinforcement Learning *S. Arnold, E. Chu, F. Valero-Cuevas*, 2016, SoCal ML Symposium

A Greedy Algorithm to Cluster Specialists *S. Arnold*, Technical Report, 2016, Arxiv Preprint

Presentations

Managing Machine Learning Experiments *S. Arnold*, Talk, 2018, SoCal Python Meetup - Los Angeles

Managing Machine Learning Experiments *S. Arnold*, Talk, 2018, Fund3 - Hong Kong

Optimization and Policy Gradients *S. Arnold*, Talk, 2017, Fund3 - Los Angeles

Press

The Quest To Make A Robotic Cat Walk with Artificial Neurons *M. Simon*, WIRED, March 2018

Awards

- **USC Senior Award for Excellence in Mathematics**: Honorable Mention, 2017
- **USC Undergraduate Research Project**: 2nd Place in Mathematics, Physics, and Engineering, 2017
- **David Wiesen Scholarship**: 2016
- **USC Summer Undergraduate Research Fellowship**: 2016
- **Microsoft Tuition Scholarship**: Finalist, 2016
- **USC Academic Achievement Award**: 2015, 2016
- **USC Provost Research Fellowship**: 2015, 2016
- **USC Dean's List**: 2014, 2015, 2016
- **HackSC Winner - Microsoft Category**: 2014

Memberships

- Society of Women in Engineering, USC Chapter

Languages

- **Bilingual**: French, Italian
- **Proficient**: English, German
- **Basic**: Spanish

Interests

- **Ski**: Throughout my highschool and part of my university studies, I was lucky to race across the Alps on the FIS circuit with the best regional Swiss skiers. This longstanding passion spawned Tooski, and I was once ranked among the best 2'000 racers worldwide.
- **Mathematics**: I am generally interested in mathematics, and more specifically in optimization and stochastic models. I like to apply them to all kinds of problems, especially the ones related to artificial intelligence.
- **Computing**: I have been programming since my early teens, and have studied different computational hardwares such as GPUs, D-Wave, and HPC clusters.