

Skills

Programming Languages	Scala, Python, R, Matlab, L ^A T _E X, Bash, Ruby
Databases	S3, MongoDB, RedShift, SQL
Distributed Technologies	Apache Spark, Spark-Streaming, Spark SQL, HDFS
Server Technologies	Docker, AWS, Azure, Google Compute Cloud, Armor, USC-HPC, Jenkins, Travis-CI
Software Development	Agile, SCRUM, GitFlow, Code Review, Sprint Planning and Review, JIRA

Experience

USC Viterbi School of Engineering

Los Angeles, California

May 2014 - Present

Computational Biologist

- Led a 5 person team composed of 2 Masters Students, 2 PhD Post-Docs, and 1 PhD Student.
- Wrote a robotic learning algorithm to control a human cadaveric hand by its muscles.
- Implemented a Scala REST API to handle a neural simulation data stream of 10GB/s.

Tools: Scala, Spark, EMR, HDFS, R, D3.js, Meteor.

Swiss Federal Institute of Technology

Zürich, Switzerland

April 2015 - May 2015

Computer Scientist

- Taught biostatistical techniques to 5 professors and 6 students at the Department of Theoretical Computer Science.
- Presented multiple research talks in Zürich.
- Derived and implemented a highly theoretical hit-and-run algorithm in Spark.
- Published an international conference proceeding at the IEEE Engineering in Medicine and Biology Society.

Tools: Scala, Java, Spark, HDFS, Python, R, Amazon EC2, and MongoDB.

Toyota Motor Sales

Torrance, California

January 2015 - April 2015

Consultant

- Single-handedly developed a crowd-sourced data validation platform that connected with tens of thousands of participants.
- Evaluated the statistical effectiveness of machine learning algorithms implemented.
- Identified significant flaws in the C360 Dealer-Concerns model, and provided exceptional proof of their existence.

Tools: Amazon Mechanical Turk, Python, R, D3.js, Scala, mllib, and HDFS.

Keck Graduate Institute

Claremont, California

May 2014 - August 2014

Project Data Scientist

- Created massively distributed in-memory machine learning frameworks to hold the 10-terabyte network and graph database from the USPTO.
- Applied a gradient boosted decision tree to predict new utility patent clusters.

Tools: AWS EC2, HDFS, R, h2o.ai, Spark, Amazon RDS.

Eli Lilly and Company

Indianapolis, Indiana

September 2013 - May 2014

Consultant

- Interfaced directly with Tony Zhang, the Vice President of R&D-Asia for 9 months.
- Led a team of six people in developing proprietary software to improve patient compliance.
- Wrote a real-time machine-learning pipeline that tags tweets about issues with competing medications.

Tools: AWS, Python, scikit-learn, R and D3.js.

Peer-reviewed Publications

"Retinal topography maps in R: new tools for the analysis and visualization of spatial retinal data."

Journal of Vision July 2015, Vol.15, 19. 2015. <https://github.com/bcohn12/retina>

Cohn BA, Wainwright P, Collin S, Schmitz L

"Exploring the nature of muscle redundancy via subject-specific and generic musculoskeletal models"

Featured Publication: Journal of Biomechanics, 2015.

Valero-Cuevas FJ, Cohn BA, Yngvason HF, Lawrence EL

"Structure of the set of feasible neural commands for complex motor tasks"

37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2015

Valero-Cuevas FJ, Cohn BA, Szedlák M, Gärtner B, Fukuda K

"Eye histology and ganglion cell topography of northern elephant seals (*Mirounga angustirostris*)."

Accepted: The Anatomical Record, 2016.

Smolaka H, Khamas W, Palmer L, Lui B, Borovac J, Cohn BA, Schmitz L

Education

University of Southern California

2015-Present

Ph.D. Computer Science, Viterbi Dean's Doctoral Fellowship

Pitzer College

2014

B.A. with Honors - Computational Biology

Selected Awards

NSF Graduate Research Fellowship - Honorable Mention in Computational Science and Engineering	Mar-2016
Graduate Student Scholarship, U. of Minnesota Computational Sensory-Motor Neuroscience (CoSMo)	Mar-2016
Microsoft US Imagine Cup Winter Semi-Finalist	Dec-2015
\$24,000 Rackspace Startup Credits	Dec-2015
\$5,000 AWS Prize, USC Venture Incubation Program (Virtual Reality)	Nov-2015
\$5,000 AWS Prize, USC Venture Incubation Program (Biomedical Compute Cloud)	Nov-2015
\$10,000 Grand Prize (USC Hacking Virtual Medicine) IEEE Standards Association	Oct-2015
USC Health Technology Innovation Fellowship	Aug-2015
USC Viterbi Dean's Doctoral Fellowship	May-2015
20,000 Compute-Hour Credits, USC HPC Cluster	Nov-2014
Pitzer College Student Research Award	Nov-2013
Pitzer College Student Research Award	Mar-2013
Howard Hughes Medical Institute Research Grant	Apr-2013

Invited Talks

Poster presentation, Society for Neuroscience, San Diego	Nov-2016
Poster: Winter Workshop on Neuromechanics, New Orleans	Jan-2016
National Science Foundation - Innovation (I) Corps Fall Networking Event	
Talk: 37th Annual International IEEE Engineering in Medicine and Biology Society, Milan Italy	Aug-2015
Talk: USC Viterbi School of Computer Science Seminar Series	Aug-2015
Poster: 39th Annual Conference of the American Society of Biomechanics	Aug-2015
Poster: 25th Annual Conference of the Society for the Neural Control of Movement	Apr-2015
Talk: Masters Capstone Research Symposium, Keck Graduate Institute	May-2014
Talk: Masters Project Thesis Defense, Keck Graduate Institute	Apr-2014
Talk: Public Masters Capstone Talk, Keck Graduate Institute	Dec-2013
Invited speaker, UC Davis FishLab	Oct-2013
Talk: Regional Society for Integrative and Comparative Biology, UC Riverside	Oct-2013
Talk: Science Department Symposium, Keck Graduate Institute	Oct-2013
Poster: Mathematical Bioscience Institute, Ohio State University	Jul-2013
Talk: Howard Hughes Medical Institute Student Seminar	Apr-2013

Conferences and Teaching

Workshop Speaker Summer School in Computational Sensory-Motor Neuroscience, Minneapolis, MN	Aug-2016
Panelist MedTech-World Conference EAST, New York City, NY "Making Sense of Big Data: Determining Actionable Data & Your Roadmap for Utilization"	Jun-2016
Featured Panelist Annual Medical Device & Manufacturer - MedTech-World Conference WEST, Anaheim, CA "Making Sense of Big Data: Determining Actionable Data & Your Roadmap for Utilization"	Feb-2016
Invited Lecturer USC Marshall School of Business, MBA Program "Financial analytics and scalable visualizations in R"	Feb-2016
Guest Lecture for BME 504 USC Viterbi School of Engineering; Graduate School Department of Biomedical Engineering "Linear program design for tendon driven systems"	Oct-2015
Guest Lecture for Neuromuscular Systems USC Division of Biokinesiology and Physical Therapy "Neuromechanic optimization in open source software" https://github.com/bcohn12/biokinesiology	Oct-2014
PharmaPack North America Conference "Driving Pharmaceutical Product Design with Consumer Intelligence: What Are Patients Saying about the Design of Your Pharmaceutical Product?"	Jun-2014
Eli Lilly and Company Headquarters "Big Data Analytics in Post-Market Surveillance and Pharmacological Vigilance"	May-2014
Guest Lecture for Sensory Evolution W.M. Keck Science Department "Retinal Specializations in the Vertebrate Eye: Spatial Interpolations and Phylogenetic Comparisons of Retinal Ganglion Cell Density Maps"	Apr-2014
National Society for Integrative and Comparative Biology "Influence of Zooplanktivory on Retinal Ganglion Cell Topography in Labrid Reef Fishes" http://sicb.org/meetings/2014/schedule/abstractdetails.php?id=1100	Jan-2014