

## Summary

- Experience in every stage of the Software Development Life Cycle including Agile Development, Sprint Review and Planning, storyboarding, engineering, programming, and documentation.
- More than eight projects of software development experience using languages like Scala, Python, Bash, YAML, HTML, PHP, CSS, and JavaScript.
- The ability to quickly learn languages, libraries, and tools to make a project deployable.
- Professional management of SCM and other tools, such as Github, Bitbucket, Git, JIRA, SBT, Maven, and Jenkins.
- Able to communicate complex ideas to diverse audiences in clear and concise language.

## Skills

<b>Operating System</b>	Linux (Red Hat Enterprise, Ubuntu), FreeBSD, MacOS, Windows
<b>Programming Languages</b>	Python, Bash, Yaml, Scala, Ruby
<b>Database</b>	MongoDB, MySQL, PostgreSQL, MSSQL
<b>Development Tools</b>	Maven, Scala Build Tool, iPython, Jupyter Notebook, RStudio
<b>Distributed Technologies</b>	Ansible, Hadoop, Spark, Docker, Digital Ocean, Amazon Web Services
<b>Server Technologies</b>	Apache, Jenkins, Hadoop, Spark, Bash, System Services
<b>Software Development</b>	Life Cycle Agile, SCRUM, GitFlow, Code Review, Sprint Planning and Review, JIRA
<b>Quality Assurance</b>	Functional Testing, Unit Testing, Pull Requests

- Led a 5 person team composed of 2 Masters Students, 2 PhD Post-Docs, and 1 PhD Student.
- Trained 7 people how to use Git and led the team with agile methodology.
- Wrote code to handle a neural simulation data stream of 10GB/s.

*Tools: Scala, Spark, HDFS, R, D3.js, Meteor, C++, and FPGA programming.*

## 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, HDFS, R, h2o.ai, Spark, Amazon EC2, Amazon RDS.*

## Eli Lilly and Company Indianapolis, Indiana

September 2013 - May 2014  
**Consultant**

- Interfaced directly with 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 for visualization.*

### **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

"A probabilistic approach to the structure of high-dimensional feasible neural commands for motor tasks"

In prep: Proceedings of the National Academy of Sciences, 2015

Cohn BA, Szedlak M, Fukuda K, Gartner B, Valero-Cuevas FJ

"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

## Education

**University of Southern California**  
*Los Angeles, California*  
**Pitzer College**  
*Claremont, California*

*2015-Present*  
**Viterbi Dean's Doctoral Fellowship - Computer Science**  
*2014*  
**Bachelor of Arts with Honors - Computational Biology**

## Selected Awards

USC Health Technology Innovation Fellowship	August 2015
USC Viterbi Dean's Doctoral Fellowship	May 2015
Pitzer College Student Research Award	November 2013
Pitzer College Student Research Award	March 2013
Howard Hughes Medical Institute Research Grant	March 2013

## Invited Talks

37th Annual International IEEE Engineering in Medicine and Biology Society, Milan Italy	August 2015
USC Viterbi School of Computer Science Seminar Series	August 2015
39th Annual Conference of the American Society of Biomechanics	August 2015
25th Annual Conference of the Society for the Neural Control of Movement	April 2015
Masters Capstone Research Symposium, Keck Graduate Institute	May 2014
Masters Project Thesis Defense, Keck Graduate Institute	April 2014
Public Masters Capstone Talk, Keck Graduate Institute	December 2013
Invited speaker, UC Davis FishLab	October 2013
Regional Society for Integrative and Comparative Biology, UC Riverside	October 2013
Science Department Symposium, Keck Graduate Institute	September 2013
Mathematical Bioscience Institute, Ohio State University	July 2013
Howard Hughes Medical Institute Student Seminar	March 2013

## Conferences and Teaching

Guest Lecture for Biomedical Engineering 504 USC Viterbi School of Biomedical Engineering "Tools for the visualization of tendon driven systems"	September 2015
Guest Lecture for Neuromuscular Systems USC Division of Biokinesiology and Physical Therapy "Neuromechanic optimization in open source software" <a href="https://github.com/bcohn12/biokinesiology">https://github.com/bcohn12/biokinesiology</a>	October 2014
PharmaPack North America Conference "Driving Pharmaceutical Product Design with Consumer Intelligence: What Are Patients Saying about the Design of Your Pharmaceutical Product?"	June 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"	April 2014
National Society for Integrative and Comparative Biology "Influence of Zooplanktivory on Retinal Ganglion Cell Topography in Labrid Reef Fishes" <a href="http://sicb.org/meetings/2014/schedule/abstractdetails.php?id=1100">http://sicb.org/meetings/2014/schedule/abstractdetails.php?id=1100</a>	January 2014