JONATHAN KING

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Education

Carnegie Mellon - University of Pittsburgh *Expected 2022*
Joint PhD Program in Computational Biology
Prof. David Koes, Advisor

University of California, Berkeley *May 2017*
B.A. Computer Science, B.S. Bioengineering
3.4 Cumulative GPA

Skills and Coursework

- Python, Bash, C, Java, SQL, Spark, R
- Algorithms for Computational Biology
- Operating Systems, Data Structures, Database Theory, Networking
- Machine Learning, Discrete Math, Probability Theory, Linear Algebra
- Biophysical Chemistry
- Molecular Biology

Research Experience

Graduate Student Researcher, Koes Lab *Aug 2017 - Present*
Carnegie Mellon - University of Pittsburgh

- Developed novel machine learning methods for protein structure prediction based on sequence to sequence models.
- Sunseri, J., **King, J.E.**, Francoeur, P.G. et al. J Comput Aided Mol Des (2018). "Convolutional neural network scoring and minimization in the D3R 2017 community challenge" https://doi.org/10.1007/s10822-018-0133-y.

Research Assistant, Hu Lab *Dec 2016 - Aug 2017*
UCSF Dept. of Physiological Nursing, San Francisco CA

- Expanded Xiao Hu et al.'s SuperAlarm project to combat alarm fatigue in hospital settings.
- Implemented Deep Learning methods in Python for the prediction of "code blue" events from hospital alarm data.
- Ran Xiao, **Jonathan King**, Andrea Villaroman, Duc H. Do, Noel G. Boyle and Xiao Hu, Senior Member, IEEE . "Predict In-Hospital Code Blue Events using Monitor Alarms through Deep Learning Approach". IEEE EMBC 2018.

Bioinformatics Intern *May 2015 - Dec 2016*
Plexxikon Inc., Berkeley CA (contracted through Lab Support)

- Developed novel algorithms to detect structural variants in patients with acute myeloid leukemia (AML). Publication pending.
- Improved specificity and reporting methods of algorithms to compete with existing software.
- Utilized Illumina's BaseSpace cloud computing platform to run application remotely with Amazon Web Services.
- Engineered scripts for parallel analysis of other biological experiments using Next Generation Sequencing data.

Research Assistant, Zilberman Lab *Apr 2014 - Sep 2014*
University of California, Berkeley

- Studied epigenetic role of DNA methylation in the Arabidopsis plant.
- Screened 200+ plants for genetic mutations through PCR / gel electrophoresis.
- Performed computational analysis of next-gen sequencing data for traits in 5 genes.

Software Engineering Experience

High-Frequency Bitcoin Trading Application
Manages user balance by intelligently buying and selling Bitcoin currency on several markets.

- Implemented web scraping methods for determining market sentiment via Google News and Twitter feeds.

Notable Projects:

- Complete Sequence to Structure Prediction of Proteins via Neural Machine Translation
- Prediction of RNA Secondary Structure via Neural Machine Translation
- An Agent-Based Approach to Modeling Ebola Outbreak

Other Work Experience

Tutor – Computer Science, Math, Chemistry, Physics *Dec 2014 - Present*
InstaEdu.com, Online Tutoring Service

- Coached over 30 high school and college students in STEM curriculum.
- Developed weekly lesson plans for video conferencing students.

Leadership and Activities

Berkeley Biomedical Engineering Society *2013 - 2017*

- Collaborated with Academic committee to plan monthly events for the Bioengineering community.
- Organized and participated in research fair, professor socials, career exploration.

Awards and Recognition

Best Talk, Northern California Computational Biology Student Symposium *Oct 2016*
"A Novel Algorithm for Detecting FLT3 Internal Tandem Duplications in Patients With Acute Myeloid Leukemia"

- Competed against graduate students from UCSF, UCSC, UCSB, and Stanford.

Other Awards
3 "Silver Key" Scholastic Art Awards for Photography | "Best Picture" Award Wikimedia National Photo Competition