

# Curriculum Vitae/Resume

## Jackson A. Killian

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### EDUCATION

**Ph.D. Computer Science** (in progress) (Aug 2018 – present)

*University of Southern California, Los Angeles, CA*

**B.S. Physics, Computer & Information Science**

*Ohio State University, Columbus, OH*

Overall GPA (4.00 scale): 3.994

(Aug 2013 – May 2018)

Arts and Sciences Honors College

### SKILLS

- **Programming Languages (proficient):** Python, C#, Java, C, C++
- **Web-design Experience:** ASP.NET, Python/Django, PHP, JavaScript, HTML, CSS
- **Database-design Experience:** SQL, SQLite, Visual Basic, Microsoft Access
- **Research Programming Experience:** Python, R, Linux Environments, MATLAB, Android, iOS

### RESEARCH EXPERIENCE

**Ph.D. Research Assistant – Computer Science**

*University of Southern California, Los Angeles, CA*

Advisors: Dr. Milind Tambe and Dr. Bistra Dilkina

- Build machine learning models in Python and R to predict TB treatment regimen adherence for patients in India
- Design and implement machine learning models to decrease solving times of the CPLEX optimizer
- Collaborate with teams from Social Work and Computer Science to solve social good research challenges

(Aug 2018 – present)

**Undergraduate Thesis – Computer and Information Science** [\[Link\]](#)

*Ohio State University, Columbus, OH*

Advisors: Dr. Kevin Passino and Dr. Arnab Nandi

- Design study to gather smartphone sensor data and Transdermal Alcohol Content (TAC) from 19 students
- Create mobile application and server to continuously collect and send sensor data over 12 hours
- Process noisy accelerometer and TAC signals and design filters to ease downstream analysis using MATLAB
- Extract features from signals and design intelligent systems to make classifications using MATLAB and Python

(May 2017 – Apr 2018)

**Undergraduate Research Fellowship – Biophysics**

*Ohio State University, Columbus, OH*

Advisors: Dr. Ralf Bundschuh and Dr. Pearly Yan

- Design computational workflow to make low-quality cancer samples useable in modern sequencing experiments
- Utilize Ohio Supercomputing Center and bioinformatics software to quantify degradation in sequencing data
- Adapt software based on discovered effects to improve sequencing data quality enabling downstream research

(May 2016 – May 2017)

**Undergraduate Research Assistant – Biophysics**

*Ohio State University, Columbus, OH*

Advisors: Dr. Ralf Bundschuh and Dr. Pearly Yan

- Collaborate with biologists to identify novel cancer-related characteristics in human genes and epigenetics
- Develop software with Python and R to design computational workflows for high-throughput sequencing data
- Design web applications for bioinformatics tools using Python, PHP, JavaScript, HTML and CSS
- Build workflows to run on nodes of the Ohio Supercomputer Center to analyze terabyte-order datasets

(Jan 2015 – Apr 2018)

### PUBLICATIONS

**Killian J**, Topiwala T, Pelletier A, Frankhouser D, Yan P, Bundschuh R. “FuSpot: A Web-based Tool for Visual Evaluation of Fusion Candidates” BMC Genomics. 2018. 19:139. <https://doi.org/10.1186/s12864-018-4486-3>

He H, Li W, Yan P, Bundschuh R, **Killian J**, Labanowska J, Brock P, et al. “Identification of a recurrent LMO7-BRAF fusion in papillary thyroid carcinoma” Thyroid. 2018. doi: 10.1089/thy.2017.0258.

## PROFESSIONAL EXPERIENCE

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### Data Science Intern

(May 2018 – July 2018)

*Spatial.ai, Cincinnati, OH*

Managers: Lyden Foust, Will Kiessling

- Collect, clean and segment geo-tagged social media posts from everywhere in the United States
- Design natural language processing pipelines using Python to assess “social scores” for cities using social media
- Create predictive models based on “social scores” and demographic data to estimate success of retail store fronts
- Generate detailed data analysis and correlation reports for executives in the retail real estate line of business

### Application Developer Intern

(May 2017 – Aug 2017)

*PNC, Philadelphia, PA*

Manager: James Snyder

- Work on software team to develop two ASP.NET web applications to support business operations
- Maintain Python/Django web application, retrofit with SSL certification to comply with security standards
- Implement comprehensive data integrity test cases during database technology transfer
- Design SQL Server Databases and Reports to support web applications

### Independent Database Designer

(Jun 2015 – present)

*Delaware City Bus Company, Sewell, NJ*

Clients: Greg and Isabel Fath

- Design MS Access database for private bus company with 150 bus routes, 80 buses, and 600 employees/students
- Implement functionality to generate schedules for drivers and aides and auto-create all company and state reports
- Construct custom back-end using SQL and VBA to provide a tailored, seamless UI/UX
- Provide technical support and implement regular updates to adapt to new user needs

## HONORS AND AWARDS

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- **1<sup>st</sup> Place in Math, Computation, and Analytics**, Denman Research Forum, OSU (Apr 2018)
- **Arts and Sciences Undergraduate Research Scholarship**, Ohio State University (Nov 2017)
- **Physics Senior Alumni Award**, Top graduating senior, OSU Physics (May 2017)
- **Pelotonia Undergraduate Research Fellowship**, Columbus, OH (May 2016 – May 2017)
- **Member of Phi Beta Kappa**, National Honor Society (Apr 2016)
- **Member of Phi Kappa Phi**, National Honor Society (Oct 2015)
- **Member of Sigma Pi Sigma**, Physics Honor Society (Jan 2015)
- **Dean’s List**, all semesters, Ohio State University Arts and Sciences Honors (Aug 2013 – Dec 2018)

## LEADERSHIP AND TEACHING-RELATED EXPERIENCE

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- **Teaching Assistant**, CSCI 102 - Fundamentals of Computation, USC (Aug 2018 – Dec 2018)
  - Deliver labs and course material reviews to section of 15 students
  - Create, manage, and grade 12 programming assignments for 200+ students
  - Manage team of 15 graders for 12 assignments, 2 exams, 200+ students
- **Creator, Organizer of ShowOHI/O**, a science-fair-style tech showcase (Apr 2017, Apr 2018)
  - 20 student projects, 60+ professional attendees, 100+ student attendees
  - Led team of 4 to secure venue, funding, projects, attendees, marketing
- **Organizer of DataFest** at Ohio State, a nation-wide data analytics competition (Apr 2017)
  - Organized sponsorship, marketing, team formation; mentored 150+ students
- **Web-team lead, Organizer of HackOHI/O**, Ohio State’s hackathon program (Nov 2016, Oct 2017)
  - 750+ students, 200+ professional judges + mentors, 100+ industry partners
  - Organized sponsorship, marketing, team formation, branding; mentor at event
  - Led team of 6 developers to build web site, track site analytics
- **Project lead for data analysis contract** with Columbus Collaboratory (Apr 2016)
  - Led team of 4 to send survey nation-wide, perform text analysis on results

## POSTER PRESENTATIONS

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- **Denman Undergraduate Research Forum (1<sup>st</sup> Place)** (Apr 2018)
  - “Smartphone-Based Intelligent System: Using AI to Track Sobriety using Smartphone Motion Sensors”
- **Denman Undergraduate Research Forum** (Mar 2017)
  - “FuSpot: A Web-based Tool for Visual Evaluation of Fusion Candidates”
- **Rustbelt RNA Meeting** (Oct 2016)
  - “FuSpot: A Tool for Fusion Detector Post-analysis Coverage Visualization of Chimeric RNA-seq Data”

## INVITED TALKS

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- **Pelotonia Research Symposium, Columbus, OH** (Oct 2017)
  - “FuSpot: A Web-based Tool for Visual Evaluation of Fusion Candidates”
- **CIO Tomorrow, Columbus, OH** (Apr 2017)
  - “OHI/O: Ohio State’s Hackathon Program”