Zach McCormick

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Summary

Zach graduated from Vanderbilt University with a BS in Computer Science and Mathematics in 2013. He has worked for a number of companies both as a full-time employee and consultant/contractor, and specializes in web applications, mobile applications, distributed systems, and software systems engineering. His main languages of choice are Python and Java, but has experience working on systems in JavaScript, Ruby, Groovy, and Scala as well.

Professional Experience

- **Braze (formerly Appboy)** — New York, NY
  Senior Software Engineer - Messaging & Automation Team — *Mar 2018 - Present*
- **Trailblazing Technology LLC** — Nashville, TN
  Senior Software Engineer — *Jun 2011 - Mar 2018*
  - **Learning Sciences Observation Application (LSOA)**: Produced an iPad application using an agile methodology to provide teachers with an efficient interface for rapidly capturing evidence of students learning. **Ongoing**.
  - **Several Private Contracts**: Assisted in litigation research and code review for a variety of technology patents involving mobile operating systems, audio encoding/decoding, engine micro-controller design, sensor fusion algorithms, and human-computer interaction.
  - **Online Timeline Follow-Back (O-TLFB)**: Implemented a commonly used Timeline Follow-Back survey as an online service to aid in collecting of research data for Renée Martin-Willett at UC Boulder.
  - **DSyM SaaS Application**: Developed a SaaS application for scoring texts according to decoding difficulty for researchers at Vanderbilt University.
  - **Private Contract**: Migrated a high-traffic YouTube-like web application from Rackspace to AWS and upgraded foundational technologies in the process (upgraded Django, moved to NGINX, moved to Waitress, etc.).
  - **Computer-assisted Personal Interviewing (CAPI) Application**: Designed and implemented an Android tablet application for interviewing and surveying refugees who may have limited prior exposure to technology or limited literacy or numeracy skills.
  - **PhoneTcB**: Developed an Android application for detection of neonatal jaundice via typical 3rd-world smartphone hardware in coalition with the research group of Prof. Chetan Patil at Temple University. **Ongoing**.
- **HoneyCo Homes** — Nashville, TN
  Product Engineer — *Aug 2016 - Apr 2017*
  - **Startup Engineering/First Engineer**: Designed smart home IoT hardware/software architecture, wrote front-end and back-end code, managed deployment and infrastructure, recruited engineers and product managers, and led the technical team.
  - **Installation and Support**: Designed installation, equipment management, and operational processes. Installed and supported several software/hardware deployments.
- **SmileDirectClub** — Nashville, TN
  Senior Systems Engineer — *Oct 2015 - May 2016*
  - **Dockerization**: Reworked organization-wide software deployment process using Docker to reduce cost, improve reliability, and ensure repeatability/consistency within one month of joining the team.
  - **Microservices to Monolith**: Migrated a suboptimal microservice architecture to a monolithic Django application to enable engineering team to maximize efficiency by leveraging mature open-source libraries and components.
  - **Data Warehousing**: Established a data warehouse for single-source-of-truth analysis of business's CRM, ERP, and eCommerce processes.
- **CircleUp** — San Francisco, CA
  Remote Engineer — *Feb 2015 - Oct 2015*
  - **Django Web Application**: Developed software in Python using the Django framework to improve and add new features to CircleUp's investor/company marketplace.
  - **Mechanical Turk**: Engineered a solution using Amazon Mechanical Turk to gather "soft" information (that could not be automatically scraped) about companies and industries for a data gathering utility to provide unique market insight for investors.
  - **Big Data Integration**: Integrated various data sources and external APIs with analysis tools to provide unique insight for both entrepreneurs and investors using Big Data approaches like data mining and machine learning.
- **Spotwise** — Nashville, TN
  Co-founder — *Mar 2014 - Apr 2015*
  - **Founding Research**: Developed initial software product for participation in the Multi-City Innovation Challenge in 2014 (between Boston, Nashville, Charlotte, and Palo Alto) and produced presentation and video, leading to our acceptance at the Jumpstart Foundry.

- **Teambuilding**: Created founding team (both engineering and business development/corporate team) in the Spring of 2014 before our entry into the Jumpstart Foundry startup accelerator.
- **Engineering Management**: Led engineers to build prototypes and mockups needed by corporate team to pivot quickly and determine the optimal trajectory of the company post-funding.

- **Optio Labs** — Nashville, TN
  Senior Development Engineer / Director of Research — *Aug 2012 - Jan 2015*
  - **Corporate Strategy**: Participated as part of the executive leadership team in the creation of a strategy to steer the company from research and development of features aimed toward system integrators, to the development of products for end users.
  - **Mobile Cybersecurity Market Research**: Executed market research from a technical perspective for all existing and future projects to determine competitor offerings, differentiating factors in our products, and overall market direction.
  - **Mobile OS Policy Engine**: Developed and architected a highly flexible policy engine and communications framework for Android and Spring that eventually led to the Optio Labs' product named Kodomo.
  - **OptioCAC**: Designed and implemented industry leading Android CAC/PIV smartcard middleware, simplifying use of smartcards and hardware cryptographic tokens for application developers.
  - **OptioCore**: Researched and developed prototypes with a team for several innovative security products based on the in-house OptioCore framework, such as a workbench for behavioral analysis of Android malware and multi-persona support for Android with an NSA-grade cryptographic barrier between personas.
- **Vanderbilt University** — Nashville, TN
  Coursera TA, TA/Grader — *Aug 2012 - May 2013*
  - **Coursera TA**: Developed quizzes, moderated forums, answered student questions, etc. for Pattern-Oriented Software Architectures for Concurrent and Networked Software taught by Prof. Doug Schmidt on Coursera.
  - **Coursera Research**: Analyzed raw online course data, looking for trends and correlations for several (upcoming) academic research papers.
  - **TA/Grader**: Held weekly office hours and graded assignments/quizzes for CS 282: Principles of Operating Systems II: Systems Programming for Android taught by Prof. Doug Schmidt.
- **Blackbaud** — Charleston, SC
  Product Management Intern — *Jun 2012 - Aug 2012*
  - **Developer Community**: Revitalized existing developer resources including http://www.bbdevnetwork.com via an iterative development process where I met with a diverse range of developers weekly to evaluate strengths, weaknesses, opportunities, and threats of each iteration.
  - **Automatic Documentation**: Developed automated developer documentation generators for the APIs of various Blackbaud products by collaborating with core consultants and developers to build tools tightly integrated into the product build process.

Education

- **Vanderbilt University** — Nashville, TN
  Bachelor of Science in Computer Science and Mathematics; GPA: 3.5 — *Aug 2009 – May 2013*
  - **Activities & Societies**: Phi Gamma Delta, Vanderbilt Mobile Applications Team, Vanderbilt Student Government
- **Budapest University of Technology and Economics** — Budapest, Hungary
  Semester abroad studying Software Engineering — *Spring 2012*

Publications

1. R. Martin-Willett, Z. McCormick, and M. Aliyu, "Novel tablet-based personal interviewing application use among newly resettled refugees," *Health and Technology*, vol. 8, no. 1-2, pp. 57–61, 2018
2. A. P. Dumont, B. Harrison, Z. T. McCormick, N. G. Kumar, and C. A. Patil, "Development of mobile phone based transcutaneous billirubinometry," in *Optics and Biophotonics in Low-Resource Settings III*, vol. 10055, p. 100550T, International Society for Optics and Photonics, 2017
3. J. White, Y. Pan, and Z. McCormick, "Addressing the challenges of http-based mobile/cloud interaction," in *Mobile Cloud Computing, Services, and Engineering (MobileCloud), 2014 2nd IEEE International Conference on*, pp. 200–209, IEEE, 2014
4. D. C. Schmidt and Z. McCormick, "Creating and teaching a mooc on pattern-oriented software architecture for concurrent and networked software," in *Proceedings of the WaveFront Forum at the SPLASH 2013 conference*, 2013
5. D. C. Schmidt and Z. McCormick, "Producing and delivering a coursera mooc on pattern-oriented software architecture for concurrent and networked software," in *Proceedings of the 2013 companion publication for conference on Systems, programming, & applications: software for humanity*, pp. 167–176, ACM, 2013
6. Z. McCormick and D. C. Schmidt, "Data synchronization patterns in mobile application design," in *Proceedings of the 19th Conference on Pattern Languages of Programs*, p. 12, The Hillside Group, 2012