Andrew R. Michael

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Skills

Tech/Tools: Linux, PostgreSQL, Emacs, Make, Docker, Terraform, Node.js, Git, misc cloud services

Languages: Python, SQL, PL/pgSQL, Bash, JavaScript, Java, misc Lisp and Scheme dialects

- API design (REST, RPC)
- developer tooling
- documentation
- data modeling
- relational databases
- system automation
- software integrations
- infrastructure administration
- core business logic

Experience

Software Engineer, Backend and Data   *August 2021 - Present*

Math and Coffee, LLC   *Pittsburgh, PA*

- Developing the backend APIs, data models, and logic driving a complex mobile social media application (iOS)
- Engineering and orchestrating numerous core backing services with a PostgreSQL database as the source of truth
    - Integrated Apple Push Notifications with application events using a PostgreSQL-backed Node.js task queue
    - Supported user storage and media pipelines by adapting open-source TypeScript middleware for AWS S3
    - Powered live messaging and data-driven, reactive client UI with real-time event streaming and pub/sub change capture over websockets (logical decoding over Elixir Phoenix channels)
    - Collaborated with a doctoral candidate to fine-tune user experience with an affinity prediction system implemented using various numerical, machine learning, and optimization libraries (NumPy, SciPy, OR-Tools)
    - Integrated the client Apple Store payments service provider for in-app purchases using webhooks receivers
- Designing scalable backend architecture from the ground up, following the principles of 12-Factor App methodology
    - Minimized environment divergence and reduced complexity by managing configuration in declarative source code
    - Increased project flexibility, portability, and scalability by containerizing all services with Docker
- Deploying cloud infrastructure on DigitalOcean and Backblaze with Terraform, provisioning and configuring application server environments with Bash and Python (ad-hoc shell scripts, Fabric, Ansible)
- Administrating services and infrastructure to ensure a reliable platform for a team of mobile developers
    - Accelerated feature release cycles by automating development tasks, image builds, and testing with GNU Make
    - Enhanced deployment process by implementing state-based database delivery through the use of schema diffing tools to autogenerate DDL for migrations
    - Bolstered data security through comprehensive integration of PostgreSQL row-level security policies with all application authorization logic
    - Analyzed load performance and probed for potential concurrency defects by simulating high-volume HTTP traffic with a variety of realistic mock data using Siege and Python Mimesis
- Publishing documentation to Confluence and tracking issues on Jira
    - Hand-crafted dev-friendly documentation with client code examples, usage scenarios, and logic diagrams
    - Generated endpoint reference documentation from a formal OpenAPI specification schema
    - Wrote operations runbooks for routine administrative tasks and procedures

Mathematics Tutor and Facilitator   *October 2015 - Present*

Community College of Allegheny County   *Pittsburgh, PA*

- Inspiring student growth and academic achievement through both individual and group instruction and coaching in mathematics, software development, computer information technology, and data analytics

Education

Bachelor of Science in Computer Science   *October 2019*

Western Governors University   *Salt Lake City, UT*