Nathaniel Schultz

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Recent Experience

Bloomberg LP — Princeton, NJ & Philadelphia, PA (Remote)

Acquisition Tech Lead — *Dec '19 – Present*

As one of the initial members of this team, I gained ownership of implementing the team's technical projects. Our team is responsible for maintaining hundreds of thousands of web crawlers and increasing our coverage with new crawlers. I build platforms to add transparency and improve reporting for Bloomberg's acquisition processes. My project portfolio includes:

- A validation workflow with over 70 logic checks to ensure web crawlers are configured properly
- A full stack website to parse web crawler configurations for easier reporting
- A metadata triple store to link various acquisition databases together

I also manage our co-op program, which is an important part of our hiring pipeline. I'm responsible for organizing our co-op hiring, on-boarding, and events. We have 4 co-ops that rotate biannually, across 4 different teams within the department.

Data Engineer — *Jun '19 – Dec '19*

In this role I contributed to several projects, managed our team's web crawler queue and oversaw our team's co-op. I worked on various microservices and a script to migrate and consolidate data from 3 legacy databases. I lead a project with three co-ops during this period to migrate the manual Jira access queue into our internal permission system.

Data Engineer Co-Op — *Apr '18 – Sept '18*

As the only co-op at the firm during this period, I was able to gain expertise in each tech stack component. My contributions during this period include web crawler configurations, microservice development, Jira workflow configuration, and productivity data EDA. I enjoyed hosting office activities like chess tournaments and weekly trivia.

Intern Experience

Booksmart Touring: Backend Engineer — *July '16 – Sept '17*

- Webserver Development: Python backend for a web and mobile application used by tour owners and musicians
- Specification Writing: Designed new feature implementations, considering scalability and maintainability. Working with management and user interface teams to meet requirements.
- Data Management: Migrating data safely to new models, preserving data integrity and backwards compatibility whenever possible.

Chess.com: Software Developer Intern — *March '17 – May '17*

- Full Stack Feature Development: Developed and integrated a new feature for a website with millions of users.
- Testing: Found a production bug and developed a fix in python.

Drexel Hyperloop: Control Systems Software Engineer — *July '16 – Oct '16*

- Sensor Data Logging: Implemented a database for live data streaming. Data sources from various engineering systems were monitored for irregularities and performance.
- Requirements Coordination: Determined software needs of multiple teams, totaling over one hundred personnel.

Thomson Reuters, IP & Science: Data Analyst — *March '16 – Sept '16*

- Big Data: Queried a Hadoop cluster to extract bibliometric data for customers. Optimized queries to deliver results timely and inexpensively.
- Data Cleaning: Parsed files into a desired format. Added custom analytic fields.
- Web Scraping: Started data population for new features and data models.

Armada International Advisors: Full Stack App Developer — *Oct '14 – Oct '15*

- IoT Project Development: Independently developed a medical equipment tracking application using Texas Instruments' sensors.
- Web and Mobile App Development: Developed and maintained multiple web and mobile apps.
- Web Scraping for Sales Leads: Collected contact information from potential clients using web crawlers and social media scraping.

Education

Drexel University — Philadelphia, PA

Bachelor of Science in Computer Science — *Sep '15 – Jun '19*

Focused on computational mathematics and artificial intelligence / machine learning. During this time I was employed at startups, participated in hackathons, and held membership in industry specific clubs. I've curated a diverse portfolio of programming projects including IoT, full stack mobile and web apps (*hybrid and native*), data analysis, graphics, and web crawlers.

Skills

Leadership: Establishing relationships with engineering groups, business stakeholders, and peers. Solid communication and presentation skillset. Intern management and hiring experience. Skilled in vendor management and productivity data analysis.

Technical: Software design, workflow design, and data pipeline design. I work regularly with Python, Javascript, and Lua. Solid knowledge of web technologies and best practices relating to web crawling. Recent web development experience with React-Redux, Flask, SQL Alchemy, and PostgreSQL. CI experience with Docker and Docker-Compose. Data analysis experience in Python using Jupyter, Pandas, and Matplotlib.

Mathematics: Applied optimization theory to solve industrial design problems. Studied abstract algebra, analysis, statistics, and nonlinear algebra (*among other topics*).

Technology

Rubric (from worst to best): Novice, Advanced Beginner, Competent, Proficient, Expert

Languages: Python (Proficient), Javascript (Competent), Lua (Advanced Beginner), Java (Competent), C (Competent), C++ (Advanced Beginner), Go (Novice), VB (Novice), Objective-C (Novice), Haskell (Novice), Prolog (Novice)

Backend Frameworks: Flask (Proficient), FastAPI (Proficient), Django (Proficient), Express (Competent), Spring (Advanced Beginner), ASP.NET (Advanced Beginner)

Frontend Frameworks: React (Competent), Redux (Competent), Vue.js (Advanced Beginner), Android Native (Advanced Beginner), Bootstrap (Novice)

Databases: Apache Kafka (Proficient), MongoDB (Competent), MS SQL (Competent), mySQL (Competent), PostgreSQL (Competent), HiveQL (Advanced Beginner), Solr (Advanced Beginner), RDF Triplestore / SPARQL (Advanced Beginner)

Side Projects

One-way Anonymous Messaging App: Native Android app to send and receive messages from strangers.

Custom Garbage Collector: Mark and sweep memory allocation example in Objective-C.

Command Line Chess Server: Real time chess as a simple networking example.

Custom Graphics Engine: Features include VBO rendering, first person movement, and basic collision detection.

Armchair Philosophy

Taoism and Monism: Presocratic philosophers thought all life and matter was interconnected. Many-worlds quantum physicists believe our dimension is connected to other dimensions through a single [probability] wave function.

Eternalism and Presentism: Einstein's theory of relativity implies the existence of block-time, and that we only feel like we're in the present because every moment of time would feel like the present. Personally, I'm ontologically eternalist but epistemologically presentist.

Free Will and Determinism: Quantum indeterminacy can be resolved with either the many-worlds philosophy or with pilot wave theory. However, preservation of quantum information may not imply that free will cannot exist. The Heisenberg uncertainty principle implies that a system cannot be perfectly observed / predicted.

Activities

Hackathons: Philly Codefest, Bitcamp, Numenta NuPic, Hackster.IO Hardware Weekend, PSU Hacks

Clubs: Bloomberg Toastmasters VP of Membership, Drexel Chess Club President, LaEsquina Garden Member

Interests

Non-exhaustive and in alphabetical order: Buddhism, camping, chess, DeFi, mathematics, open source, philosophy, Rubik's cubes, software engineering, vegetarian cooking, volunteering, and yoga.