

Wayne Small

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PROFESSIONAL EXPERIENCE

Pythonic, Senior Machine Learning Engineer • March 2021 to November 2023

- Evaluated open-source SOTA models for various multimodal problems including Visual Document Understanding, Key Information Extraction, Signature Detection and Classification, and Document Splitting
- Devised, trained, and deployed a SOTA model for Signature Detection and Classification
- Finetuned various open-source models including BERT, LLama, Mistral, LiLT, Donut, ViT, and Dinov2
- Used various tools from Huggingface, PyTorch, PyTorch Lightning, NumPy, etc to preprocess data and train models
- Curated multiple datasets in collaboration with the labeling team
- Built various tools for preprocessing, postprocessing, inference, and ensemble modeling
- Wrote efficient and clean Python code
- The first employee hired

NLPLogix, Jacksonville, FL • Software Engineer • February 2020 to March 2021

- Discussed and analyzed client business problems and their datasets with other engineers and researchers
- Designed machine learning algorithms to solve these problems including Autoencoders, RNN's, SVD, K-means, and Permutation Importance
- Implemented these algorithms and preprocessing steps with PyTorch, NumPy, and Pandas

Self Study in Machine Learning, Englewood, NJ • June 2017 to January 2020

- Decided to transition from iOS developer to machine learning engineer
- Reviewed and solved many problems in Linear Algebra, Multivariable Calculus, and Probability
- Learned the fundamentals of machine learning including MLP's, backpropagation, SGD, vanishing gradient, convolutional networks, RNN's, etc.
- Watched lectures, read notes, and solved/coded all of the assignments from [CS231n](#)
- Worked through many of the lectures, notes, and assignments for [CS224n](#)
- Refreshed my knowledge of data structures and algorithms by working through many problems and coding their solutions efficiently and cleanly (Python)
- Blogged about my interests in [SVD](#), [PCA](#), and the [Conjugate Gradient](#), [CG2](#), [CG3A](#), [CG3B](#), [CG4](#), [CG5](#), [CG6](#)

iOS Developer - Contractor, Englewood, NJ • December 2014 to May 2017

- Clients included NBCUniversal and Merrill Lynch
- Led the development of the SDK underlying the [main NBC app](#). We also normalized the SDK for [all NBCUniversal subsidiaries including NBC, CNBC, NBC Sports, Bravo, Syfy, USA, etc](#). The SDK handles video playback (live and VOD), Chromecast, authentication, authorization, and some other

functions. Made use of SDK's from Anvato, Akamai, AdobePass, GoogleCast, etc.

- Architected and coded SDK
- Reviewed code from senior, mid-level, and junior developers
- Built the Jenkins server for automated builds
- Interviewed and made hiring decisions for junior, mid-level, and senior developers
- At Merrill Lynch, I architected and coded static frameworks that included functionality for file downloading, PDF viewing, document sharing via video conferencing, etc.

Jun Group, New York, NY • Senior Mobile Software Architect • February 2014 to November 2014

- Architected and coded iOS and Android SDK's for mobile advertising
- Built the functionality to support iOS VAST (video ad serving template) which consists of a native video player using AVPlayer and also sends tracking events to the server to monitor video progress and completion
- Built Android prototype for SDK push notifications using Google Play Services
- Built integration tests using Calabash and Appium (both Ruby based)
- Provided guidance to Android developers regarding our SDK and the VAST specification
- Interviewed candidates for Android development roles
- Worked in an Agile, TDD, Jira, and Git environment

Vectorform, New York, NY • Senior Interactive Developer • July 2013 to February 2014

- Architected and coded Android applications including
<https://play.google.com/store/apps/details?id=com.chrysler.mopar.ownersapp>
- Built advanced graphic components including sliding menu, pinned header, Pinterest-style listview, etc. In particular, I built the Mopar sliding menu from scratch. If you download the tablet version, you will see the unique sliding functionality that necessitated this. You will also see that my sliding menu is on par or better than the best open source sliding menus.
- Reviewed and managed coding done by junior developers
- Provided extensive Android architecture and coding lessons to junior developers including fundamentals of life-cycles (Activities and Fragments), asynchronous tasks, content providers, SQLite, LoaderCallbacks, services, localization, Java basics, manifest permissions, features, and declarations, etc.
- Learned iOS fundamentals on my own time, including CoreData, table view controllers, Objective-C, etc.

Credit Suisse, New York, NY • .NET Developer AVP • June 2011 to July 2013

- Developed enhancements for PrimeSwap global real-time order feeds in C#, WCF, Windows Services, etc. This included adding new regional feeds, converting legacy feeds to WCF, and substantially increasing concurrency, robustness, and exception handling
- Developed enhancements and bug fixes for PrimeSwap Blotter GUI and underlying services in WPF, Winforms, Infragistics, etc.
- Liaised daily with traders and middle office regarding enhancements and production issues
- Liaised daily with developers in London, Singapore, and Pune regarding current projects
- Participated in complete SDLC including significant contributions in QA, business analysis, and documentation compilation and review
- Managed summer technical interns

CarryQuote, New York, NY • Data and Quantitative Analytics Manager • January 2009 to September 2012

- Managed collection, validation, and presentation of global market data across all asset classes
- Managed team of data analysts in Shenzhen, China (and traveled there regularly)

- Developed analytics and data testing tools in C#, ASP.NET, jQuery, Javascript, AJAX, JSON, WCF, SQL, Silverlight, etc
- Developed corporate actions application including multithreaded FTP data collector (C#) and stored procedures to execute corporate actions internally
- Developed end-to-end prototype for trading back-testing tool in Silverlight, WCF, and SQL
- Developed end-to-end prototype for HTML5 charting engine application in jQuery, Javascript, ASP.NET, AJAX, JSON, WCF, and SQL

WM Capital Management, Delray Beach, FL • Quantitative Trader • September 2007 to November 2008

- Directed and implemented trading strategy, trade execution, client relations, and operations
- Implemented correlation and mean-reversion trading strategies in C#
- Researched and back-tested a wide variety of quantitative strategies involving econometric methods

Hillside Capital Management, New York, NY • Algorithmic Trader • December 2006 to September 2007

Carlin Financial Group, New York, NY • Algorithmic Trader • May 2006 to December 2006

- Hillside grew out from the Algorithmic Trading Desk at Carlin upon RBC acquisition
- Designed and implemented fully automated high-frequency statistical arbitrage strategies - US equities
- Used various econometric methods: time series, regression, and correlation analysis
- Oversaw and maintained the execution of all automated trading

MarketAxess, New York, NY • Business Analyst • May 2005 to May 2006

- Liaised with traders and prime brokers to build the business specifications for electronic credit default swaps trading, prime brokerage trading, and BondTicker enhancements
- Wrote and edited marketing documents related to new product releases
- Constructed up-to-the-minute swap curve in Excel/VBA for use in the computation of CDS pricing

Independent Contractor • Programmer and Consultant • 1999 to 2003

- Acquired clients through references (3 total clients, 1 of them continuously for all 4 years)
- Designed, built, and maintained the SQL code underlying sales, production, and inventory reporting
- Advised client personnel on data retrieval using SQL

Systems & Computer Technology Corporation, Malvern, PA • Technical Consultant • 1997 to 1999

- Consulted with customers to determine the financial reporting model that best met their business requirements and facilitated compliance with GAAP
- Instructed customers in a corporate classroom setting on the financial application within software
- Developed SQL views, stored procedures, and Crystal Reports

Coopers & Lybrand L.L.P., Philadelphia, PA • Senior Auditor • 1994 to 1997

- Planned and conducted financial and operational audit engagements on predominantly SEC clients
- Prepared audit and business process reports and reviewed audit work paper documentation
- Instructed, supervised, and mentored new senior auditors and audit staff

PREVIOUS PROJECTS

[Supproto](#), a peer-to-peer video conferencing and chat app for iOS

- Wrote the server and most of the client in C using sockets
- Implemented UDP hole-punching and other pieces from scratch
- C and networking code: <https://github.com/waynemystir/udp-hp>
- Objective-C and iOS code: <https://github.com/waynemystir/udp-hp-ios>

- Made use of WebRTC for video
- It's very buggy. I did this alone in my spare time.

[Trotter Travel In The App Store](#), a travel app for searching and booking hotel rooms

- Wrote the server and most of the client in C using sockets
- [Trotter Travel Client Code](#)
- I have used the Google Places and Google Geocoding API's to provide users with a means to search for locations via UITextField and via a map (reverse geocoding). I have also used the Expedia Affiliate Network API to provide functionality for searching and booking hotel rooms
- Includes many custom-made components that I built myself

EDUCATION

University of Wisconsin – Madison, Madison, WI • MS Quantitative Finance May 2005

- Scored 740 (98th percentile) on the GMAT and 1440 (800 math / 640 verbal) on the GRE
- Coursework included continuous time finance, exotic derivatives valuation, numerical methods, econometrics, time series analysis, stochastic processes, Ito's formula, SDE's, duration and convexity, equilibrium and no-arbitrage models, portfolio theory, advanced calculus, real and complex analysis, ODE's, and topology
- Teaching Assistant for Investment Theory & Practice (MBA level course) covering modern portfolio theory, CAPM, APT, and Black-Scholes pricing with students

Illinois Wesleyan University, Bloomington, IL • BA Accounting May 1994

- Participated in Varsity Football, two-year starter at wide receiver