Christopher S. Corley, PhD

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SKILLS

- Ruby
  - Rails
  - Sidekiq
- .NET
  - C#
  - Framework & Core
  - ASP.NET WebAPI
  - VB.NET
  - NServiceBus
- Python
  - Flask
  - Django
  - numpy
  - Jupyter Notebooks
- SQL
  - MySQL
  - PostgreSQL
- JavaScript
  - Electron
  - Node
  - TypeScript
  - Stencil
  - Vue
- Tailwind CSS
- Rust
- Go
- Swift
- Git
- Elasticsearch
- Redis
- MongoDB
- RabbitMQ
- New Relic
- GNU/Linux
- Windows Server & IIS
- Kubernetes
- Docker
- Google Cloud Platform
- Amazon Web Services
- Azure DevOps
- GitHub Actions
- ArgoCD
- Nix
- Prometheus
- Grafana

PROFESSIONAL EXPERIENCE

Fathom Video, *Software Architect*
March 2025 – present | Remote

- Individual contributor asynchronously working using Ruby on Rails, Go, TypeScript, and Kubernetes
- Coordinated and participated in weekend database and infrastrucuture maintenance tasks
- Implemented a more robust OAuth token renewal that fixed several bugs leading to non-trivial amount of user-frustrating token revocations
- Implemented and refactored a new recording approach that is anticipated to significantly increase overall margin
- Processed and responded to security alerts and vulnerability reports
- Implemented an application for contiuous monitoring meeting state using Swift on MacOS and .NET (C#) on Windows

Fathom Video, *Staff Software Engineer*
July 2023 – March 2025 | Remote

- Extracted scale-dependent Rails models into individual services and databases
- Implemented partitioned-based PostgreSQL storage with pg_partman for high-volume ephemeral data, reducing multi-TB databases to 2GB
- Re-wrote entire transcoding pipeline to reduce cost, storage operations, and improve speed of completion
- Onboard new developers, mentor and guide implementation of new features
- Support customers by importing their existing recording data
- Integrated key enterprise features such as SSO over SAML and user provisioning with SCIM (Okta only)
- Managed high-scale rollouts to hundreds of thousands of daily active users, safely introducing new features and deploying bug fixes

Fathom Video, *Senior Software Engineer*
February 2021 – July 2023 | Remote

- Pair and mob programming to develop new features, debug issues and incident outage response
- Assist and support users with installation and ongoing problem diagnosis
- Researched, designed, implemented, and maintained real-time event processing architecture that drives user-facing live recording features
- Overhauled CI/CD pipelines using GitHub Actions, Google Cloud Build, and ArgoCD to reduce build and deployment times from 45 minutes to 5 minutes
- Designed and implemented flexible and reusable Elasticsearch-based search architecture and backend maintenance support methodologies that has been used unchanged since implementation in 2021
- Build and maintain Grafana dashboards with Prometheus data for all services
- Re-implemented and refactored Electron-based application prototype into a robust cross-platform user desktop application
- Implemented backend and frontend features for editing videos and transcripts
- Designed and reimplemented security features and administrator dashboards
- Re-integrated OAuth sign-up flows for Microsoft, Google, and Zoom

EDUCATION

PhD, Computer Science
University of Alabama
May 2018
Online Topic Modeling For Software Maintenance Using A Changeset-Based Approach

MS, Computer Science
University of Alabama
August 2014

BS, Computer Science
University of North Alabama
May 2011

OTHER EXPERIENCE

Open-source projects

- whatthepatch: Python diff/patch parsing library, owner
- Gensim: Python topic modeling library, previous core contributor

Research instrumentation

- Language-agnostic source code parser using ANTLR4 grammars. Java, XML
- Application for source code search using linguistic similarity rather than keywords. Python

Additional professional experience history available on request

Coyote Logistics, *Lead Software Engineer*
August 2019 – February 2021 | Chattanooga, TN, USA

- Manage deployments and releases of products owned by team
- Moved team from Scrum-style sprints to Kanban
- Gathered project requirements and documented work to be completed
- Explore and make development plans for team to execute
- Communicate project status, updates, and progress to management and business analysts
- Pair programming to debug issues or resolve development blocks
- Mentoring on test writing, refactors, and experimentation of changes
- Designed and mentored changes for implementing Elasticsearch script-based updates of time-critical and continuously updated data
- Designed, developed, and delivered project that overhauled company search functionality with Elasticsearch solution that replaced SQL-based queries with flexible type-ahead and fuzzy searching
- Implemented data collection and research for actual user search selections
- Lead project converting in-memory caching to Azure-hosted Redis
- Converted team build infrastructure to YAML-based Azure DevOps pipelines
- Build and maintain Kibana dashboards for Logstash logging

Coyote Logistics, *Senior Software Engineer*
April 2019 – August 2019 | Chattanooga, TN, USA

- Productionalized a data-science model in Python with Flask
- Improved model training efficacy, model deployment, and prediction robustness of data-science models
- Designed, implemented, and documented service changes that moved Elasticsearch clients to secure-connection clusters
- Designed, implemented, and documented an internal NuGet library for Elasticsearch index management
- Provided de facto implementations and patterns for the company that allows teams to rapidly develop and deploy Elasticsearch-based applications
- Installed and maintained Developer and QA Elasticsearch clusters

Coyote Logistics, *Software Engineer*
February 2016 – April 2019 | Chattanooga, TN, USA

- Designed and implemented Elasticsearch-based services to replace SQL searching and reports
- Architected A/B service that accounts for Elasticsearch index changes, removing service maintenance windows and allowing for continuous deployment
- Single-handedly upgraded company dependencies on Elasticsearch 1 to Elasticsearch 5, introducing architecture and development patterns for gradual upgrades on future major versions
- Reformulated critical Elasticsearch queries that brought mainline application query time from 30 seconds to sub-second searches
- Designed and implemented Elasticsearch jobs for identifying and removing old documents from long-lived indices reducing index disk sizes 85% or more
- Implemented major improvements to robustness and reliability of critical internal WCF location geocoding and distance routing service while introducing large refactors and increasing unit test coverage from less than 250 to over 1500

- Reduced requests to external service by 99% (200K/day to 2K/day)
- Researched and authored comprehensive service documentation
- Designed protocol and process for deprecating WCF service methods

ABB Corporate Research, *Visiting Researcher & Research Developer*
January 2015 – February 2016 | Raleigh, NC, USA

- Conceived, designed, and developed application for "FlowLight" project to reduce interruptions of knowledge workers using LED lights, including constructing and soldering physical research prototypes
- Developed and maintained research instrumentation software
- Maintained internal web service and Visual Studio plugin for internal users

University of Alabama, *Graduate Research/Teaching Assistant and Mentor*
Summer 2011 – Spring 2015 | Tuscaloosa, AL, USA

- Collaborated on literature review and systematic classification of security research topics though the NSA Grant: "Growing the Science of Security Through Analytics"
- Taught 1st & 2nd year students introductory and intermediate-level programming using Python on Linux-based systems
- Emphasized software engineering principles and best practices to students by example and student collaboration
- Lead, collaborated, mentored, and supervised undergraduates on research projects in Research Experience for Undergraduates program
- Published and presented peer-reviewed research papers in leading software maintenance conferences and workshops
- Peer-reviewed research papers and provided early feedback to authors