ALEXANDER TSEMA

NYC | swe@alexandertsema.com | alexandertsema.com | linkedin.com/in/alexandertsema | 917 634 0202

WORK EXPERIENCE

Senior Software Engineer – Paige AI New York, NY 9/19 – present

Helped to establish an engineering direction of the company by providing various architectural guidelines for backend and frontend and establishing different best practices, principles, and standards. Designed the big picture architecture for the whole platform. Evangelized clean code and clean architecture philosophy. Mentored other senior engineers and helped them to grow. Helped our scrum implementation to mature. Introduced Domain Driven Design concepts such as strategic design with subdomains on all layers from the code and monorepos design up to production Kubernetes cluster architecture. Identified core, supporting and generic subdomains which helped to outsource low impact systems to increase iteration speed by focusing internal teams on what matters for business. Introduced rapid design techniques such as event storming and proof of concept which helped the teams to iterate much faster towards the MVP and get an unprecedentedly fast FDA clearance. Designed the ecosystem of elegant shared components such as shared Python packages (pubsub, serialization, config management, various wrappers, abstractions, and boilerplates) and Docker images which was widely adopted by all teams within the company and helped us to focus on solving business problems. Enabled internal open source which helped to maintain this ecosystem and do incremental improvements. Worked with DevOps engineers to optimize CI/CD pipelines which increased our release frequency. Enhanced developer experience with release management tools like Octopus and build tools like TeamCity and GitLab by introducing homogenous versioning and naming conventions of components. Architected and took part in the implementation of the distributed system for ingestion of the heavy gigapixel images from the hospitals composed of a non-traditional innovative edge compute solution deployed on hospital premises and AWS cloud data curation subsystem. Architected and developed the system for large objects storage and curation which was able to scale to hundreds of petabytes. Architected and developed globally distributed HIPPA and GDPR compliant system for patient clinical data management which helped the business to get several early access customers across the globe. Architected and built patented scalable distributed inference framework with scientist friendly SDK which was used by AI teams to deliver AI models to the end customers and integrate with other parts of Paige platform. This framework increased turnaround time of the AI teams by 20 times. The event driven nature of the design allowed to run distributed inference on gigapixel pathology images on GPU Kubernetes nodes with unprecedented elasticity. Initiated legacy ASP.Net monolith used as gigapixel images visualization engine break down into scalable and robust microservices maintaining the stability and usability of the system.

Event Driven Design, Domain Driven Design, Microservices, Pubsub, AWS SQS SNS EKS S3, Docker, Kubernetes, KubeEdge, Python, C#, Atlas MongoDB, Octopus, TeamCity, GitLab, Bitbucket

Tech Lead | Senior Full-stack Software Engineer – Purplebricks Inc. New York, NY 7/17 – 9/19

Architected and developed highly optimized, robust, scalable image processing pipeline for public facing website on-demand image resizing and compressing which reduced the Azure resources costs by 90% and drastically improved UX. Architected and implemented event-driven integration with CRM which aggregated data from various domains and sub-systems. Architected and implemented microservice for listing syndication with external portals which helped to stay in business with Zillow. Implemented a library-wrapper for CosmosDB which had all the boiler-plate machinery which can be used in a microservice to simplify dev story. Maintained MLS integration microservice with over 30 different boards across the US. Implemented React components for public facing website including forms, validators, and API clients. Optimized landing page to improve the performance and robustness. Created Grafana dashboards with alerts which helped to identify unusual behavior and gave developers enough time to react. Built a scrum team of 5 engineers. Mentored junior/mid engineers.

ASP.Net Core, C#, Python, Flask, Pillow, CosmosDB, MongoDB, SQL Server, EF, Typescript, NodeJS, React, Redux, ngnix, Azure, Octopus, CI/CD, Docker, Grafana, Microservices, Messaging, Scrum, Git, TDD

Software Engineer – Department of Health and Mental Hygiene New York, NY 8/16 – 6/17

Introduced innovative technologies and approaches of software development. Developed brand-new document flow automation system using microservices architecture which reduced maintenance costs and drastically improved user's performance. Developed the application for agent performance reports generation. Designed and developed dashboard of servers' performance. Maintained legacy Python services. Migrated environment from MongoDB version 2.6 to MongoDB version 3.4. Upgraded legacy applications to .Net Core.

ASP.Net, ASP.Net Core, C#, Python, Angular, JS, Typescript, MongoDB, SQL Server, TDD

Software Developer – MAYKOR St Petersburg, Russia 5/14 – 7/15

Architected and took part in the implementation of the system for school automation: e-grades, building access control, cafeteria e-payments. Participated in designing and implementation system for postal services standalone software updates. Developed monolith application for Toyota vehicle factory and Aquaphor water filer factory.

ASP.Net MVC/Web API, C#, WCF, Python, JS, SQL Server, MongoDB, Git, TDD

Software Developer, Owner – OneTwoPrint St Petersburg, Russia 10/14 – 3/15

Invented, designed, and built a vending machine prototype (hardware & software) dedicated to printing photos from Instagram. Developed web portal for remote monitoring. (ASP.Net Web API, WPF, C#)

Software Developer, Owner – AT Web Design Studio St Petersburg, Russia 9/10 – 11/16

Provided a full cycle of software development for international clients. Worked on business processes automation, websites, web services, and desktop applications.

ASP.Net MVC/Web API, C#, WCF, WPF

EDUCATION

MS Computer Science – The City College of New York New York, NY 9/15 – 6/17

Graduation Project Work: Scene Classification for Indoor Localization System

MS Software Engineering – ITMO University St Petersburg, Russia 9/14 – 6/16

Graduation Thesis Work: The Method of Face Features Recognition Using Neural Networks

BS Computer Science and Computer Engineering – ITMO University St Petersburg, Russia 9/10 – 6/14

Graduation Thesis Work: Pattern Recognition in Video Streams

ACTIVITIES

Coauthor of the book "Computer Vision for Assistive Healthcare" New York, NY 1/18

INTERESTS

Computer vision, AI, machine learning, gardening, and aquascaping.