

DR. POUYA ATAEI

AI Research Leader & Computer Scientist (PhD in Big Data)

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 Pouya-Ataei



What I have to offer?

I am a Computer Scientist with a PhD in Big Data and 13+ years of experience bridging cutting-edge research with practical product implementation. My doctoral research focused on distributed systems and AI architectures, resulting in multiple peer-reviewed publications at prestigious conferences including AMCIS, ACIS, and APSEC. As Principal Data Engineer at Vector, I currently lead the development of large-scale ML models for energy analytics and demand forecasting.

Throughout my career, I've successfully transitioned from hands-on research to leading teams of 35+ engineers, always maintaining a balance between scientific rigor and practical impact. I'm passionate about coaching researchers, translating academic breakthroughs into scalable solutions, and have extensive experience with neural architectures, distributed training, and model deployment at scale.

What I'm looking for?

- Leading and mentoring world-class research scientists
- Bridging foundational model innovation with product impact
- Contributing to the global AI community through publications
- Hands-on involvement in cutting-edge AI research
- Collaborative environment fostering scientific excellence
- Opportunity to shape research strategy and vision

Technical & Research Expertise

Python



Research Mentorship



TensorFlow/PyTorch



AWS/GCP for ML



Generative AI (GANs, Diffusion)



Kubernetes/Docker



VAEs & Autoregressive Models



MLOps & Model Deployment



Deep Learning



Vector Databases



Machine Learning



Javascript/Typescript



Distributed Training



C++/CUDA



Model Optimization



Distributed Systems



Scientific Computing (NumPy, SciPy)



Academic Writing



Research Methodology



Conference Presentations



Big Data & Analytics



Cross-functional Collaboration



Data Engineering



Product-Research Translation



Work Experience

Principal Data Engineer at Vector Limited

Auckland, New Zealand

 May 2025 – Current

- Lead the design and implementation of large-scale, serverless data architectures for ingesting, processing, and analyzing energy data from smart meters, DER telemetry, and network performance systems.
- Bridge data science and software engineering by developing and operationalizing energy analytics models that support demand forecasting, asset optimization, and grid flexibility.
- Drive AWS cloud cost efficiency through best practices in Glue, Athena, S3, DynamoDB, and event-driven architectures.
- Implement automated data validation, lineage tracking, and observability to maintain data quality and ensure compliance with regulatory frameworks.
- Design and scale Diverge's data platform to support both real-time and batch energy analytics with a focus on performance, security, and cost-efficiency.
- Architect and deploy energy data algorithms while ensuring efficient and scalable model inference integrated with Diverge's services.
- Lead test automation strategies that embed data quality checks into CI/CD pipelines and foster an architectural culture that promotes iterative, autonomous development.
- Mentor junior engineers, fostering a high-performance engineering culture aligned with the company's long-term technology vision.

Tech & Tools: AWS (Lambda, DynamoDB, S3, Glue, Athena), Python, Serverless Architecture, Data Engineering, Machine Learning, CI/CD, Event-Driven Architecture, Data Science

Engineering Manager at Invenco by GVR

 Sep 2024 – May 2025

Auckland, New Zealand

- Lead the strategic 'Engage' domain, managing 35 engineers across 4 cross-functional teams, overseeing critical distributed systems that operate at world-class scale (8 out of 10 petrol stations in USA).
- Serve as the principal architect for the entire 'Engage' domain, holding sole responsibility for architectural decisions and technical direction across all systems and services.
- Design and implement event-driven architectures using Kafka and AWS EventBridge, enabling real-time data processing and system integration at scale.
- Establish and enforce engineering excellence through comprehensive TypeScript guidelines, Clean Architecture principles, and Domain-Driven Design practices across all teams.
- Implement Value Stream Management and Flow Framework methodologies to optimize delivery pipelines and enhance team productivity while reducing cognitive load.
- Architect and implement advanced observability solutions using OpenTelemetry, significantly enhancing system monitoring and performance tracking capabilities.
- Drive technical excellence through cloud-native architectures, leveraging AWS, Kubernetes, and Kafka for robust distributed systems.
- Oversee development across diverse technology stacks including Node.js, Go, C#/.NET, and Snowflake for data warehousing solutions.
- Guide architectural decisions and technology choices to support the organization's growth and scalability goals.

Tech & Tools: AWS, OpenTelemetry, Node.js, Kubernetes, Docker, Terraform, GitLab CI/CD, Microservices, Python, Bash, Vector Databases, TensorFlow

Development Team Leader - Cloud Architecture at Invenco by GVR

 July 2024 – Sep 2024

Auckland, New Zealand

- Lead a cross-functional team in developing and maintaining cloud-based payment solutions, fostering innovation and continuous improvement.
- Architect and implement scalable cloud services, ensuring high performance and security standards are met.
- Created and implemented a comprehensive observability plan using OpenTelemetry, significantly enhancing system monitoring and troubleshooting capabilities.

- Successfully scaled our terminal infrastructure to handle over 300,000 requests in under 30 minutes, dramatically improving system capacity and responsiveness.
- Drive adoption of modern software engineering practices, including microservices architecture and serverless computing.
- Collaborate with stakeholders to define technical roadmaps, balancing immediate needs with long-term strategic goals.
- Mentor team members, facilitating their professional growth and fostering a collaborative work environment.
- Spearhead the integration of DevOps practices, improving deployment frequency and reducing time-to-market for new features.
- Stay abreast of emerging technologies, evaluating their potential impact on the organization's cloud strategy.

Tech & Tools: AWS, Kubernetes, Kafka, OpenTelemetry, Node.js, Go, C#/.NET, Snowflake, Terraform, Docker, GitLab CI/CD, Python, Bash, Vector Databases, TensorFlow

Lead Development Architect at Idexx Laboratories

Auckland, New Zealand

 Sep 2021 – July 2024

- Stood responsible as one of the company's lead architects, taking part in critical technological decisions across different regions.
- Worked on an event-driven architecture using Kafka, deployed and tested an archetype with consultants from Confluent.
- Presented the company and engaged with representatives from Databricks, Heap, Apollo, AWS, Gitlab, Confluent, BizzDesign and others.
- Created a scientific methodology for software delivery.
- Introduced novel data-driven approaches to decision making.
- Designed infrastructure, applications and integrations on daily basis.
- Coached and mentored junior, intermediate and senior engineers, providing guidance on best practices, and best ways to learn.
- Supported various teams in various feature development through high-level models and also hands-on coding.
- Completed various leadership courses, including CASCADE, and practiced servant leadership principles, prioritizing team growth and well-being.
- Applied concepts from "Leaders Eat Last" and "The Servant" to foster a culture of trust and collaboration, leveraging Team Topologies and Domain-Driven Design to streamline communication and align team efforts.

Tech & Tools: Archimate, TOGAF, ADM, BDD, DDD, AWS, Kafka, Go, Graph, SQL, Terraform, Kubernetes, Elasticsearch, Typescript

Tech Lead at Idexx Laboratories

Auckland, New Zealand

 Jun 2021 – Sep 2021

- Served as a key lead architect, driving critical technological decisions and strategies across various regions, emphasizing my pivotal role in shaping the company's technological landscape.
- Designed and deployed a distributed data layer, introducing a declarative client-driven API to enhance system flexibility and client interaction efficiency.
- Engineered an event-driven architecture leveraging Kafka, including the deployment and rigorous testing of a prototype in collaboration with Confluent consultants, showcasing my expertise in modern, scalable system design.
- Actively engaged in feature development, technical debt reduction, and incident management, contributing to continuous improvement in system reliability and development practices.
- Presented scientific approaches and innovative solutions across different teams to address existing challenges and develop new features, fostering a culture of continuous learning and cross-team collaboration.

Tech & Tools: Laravel, Terraform, AWS, Apollo, Go, Rust, Node, React, PHP, SQL, Kafka, Python, Kubernetes, Elasticsearch, Typescript

Senior Fullstack Developer at ezyVet

Auckland, New Zealand

 Jul 2020 – Jun 2021

- Elevated from Senior Frontend Developer to Frontend Tech Lead within Ezyvet, taking comprehensive responsibility for all frontend applications, demonstrating rapid professional growth and trust in my leadership and technical capabilities.
- Championed the integration of best practices and cutting-edge technologies into the team's workflow, significantly enhancing project outcomes and efficiency. Actively contributed to the development and refactoring of complex features, reinforcing the team's adaptability and technical prowess.
- Orchestrated a major refactor of the frontend codebase, quintupling its modifiability, performance, and security, which substantially boosted the application's reliability and user satisfaction.
- Spearheaded the recruitment process for new talent, playing a pivotal role in interviewing, onboarding, and mentoring new hires, thereby fortifying the team's capabilities and fostering a culture of continuous learning and improvement.

- Addressed critical engineering challenges in both the frontend and platform domains, implementing solutions that dramatically optimized our deployment pipeline—cutting build and deployment times from an average of 45 minutes to just 8 minutes, greatly accelerating product iteration cycles and enhancing team productivity.

Tech & Tools: *React, Typescript, AWS, Go, Laravel, Kubernetes, Terraform, PHP, Node*

Fullstack Developer at Infosys

Auckland, New Zealand

 Feb 2020 – Jul 2020

- Deployed to Vodafone to take part in the development of a new E-shop.
- Began as a frontend developer, but I rapidly expanded my role to encompass CMS and backend development, demonstrating flexibility and a broad skill set.
- Was one of the main engineers that worked on the frontend and the e-commerce backend. The work included checkout processes, cart validation, product pages, and component design, along with optimizing SEO, implementing analytics, conducting UI and end-to-end testing, and driving integration projects.
- Worked on various legacy Oracle systems and written integration and anti-corruption layers.
- Collaborated closely with a diverse range of stakeholders on a daily basis, focusing on the development of innovative concepts, and the identification and resolution of bugs and defects, ensuring continual improvement and operational excellence.

Tech & Tools: *React, Flask, DynamoDB, Jenkins, AWS, BigCommerce, Java, Python, Javascript*

Frontend Engineer at Navigate Travel

Auckland, New Zealand

 Jun 2019 – Feb 2020

- Spearheaded the migration of three websites from WordPress to Gatsby, integrating React, Contentful, and Node (NestJS), successfully transitioning 900 blog posts with a keen focus on SEO optimizations and schema markups.
- Enhanced the performance and SEO of existing WordPress sites, implementing advanced optimization strategies to improve search engine rankings and user engagement.
- Developed a cross-browser, responsive web application that combines dynamic and static elements, delivering an exceptional user experience on all devices.
- Managed API concurrency issues, dynamically updating product prices, names, and descriptions to ensure real-time accuracy and responsiveness.
- Contributed to refining the company's SEO strategy, leading to measurable improvements in web visibility and traffic.
- Collaborated in the UI/UX design process, creating intuitive and user-friendly interfaces that enhance customer satisfaction and engagement.
- Leveraged emerging technologies in both front-end and back-end development, significantly increasing application performance and speed.
- Implemented a polyglot persistence architecture, enhancing system efficiency and scalability to support growing data demands and diverse data types.

Tech & Tools: *Gatsby, Contentful, React, Node, Sass, Graphql, Netlify, Vercel, Gitlab Pipelines, AWS, Google Cloud*

Founder, Lead Fullstack Developer at Pouyaraveshan Academy

Tehran, Iran

 Feb 2017 – June 2019

- Implemented servant leadership principles from "The Servant" to empower and uplift team members, creating a collaborative and growth-oriented environment, drawing from insights in the book "Leaders Eat Last".
- Optimized SEO strategies, achieving an average website position of 8.5 and a click-through rate (CTR) of 6.5%, significantly enhancing online visibility.
- Directed a team to launch an early version of our website's Accelerated Mobile Pages (AMP), resulting in a 70% increase in traffic.
- Conducted computer science and software engineering workshops, covering a wide array of technologies and empowering participants with new skills.
- Oversaw key operations including marketing, content creation, administration, student engagement, system development, and orchestration, driving comprehensive organizational growth.
- Regularly developed, maintained, and enhanced pouyaraveshan.org, ensuring an engaging user interface and robust backend functionality.
- Implemented and fine-tuned a Learning Management System (LMS), both improving client experience and streamlining organizational processes through automation.
- Implemented an online learning system using Adobe Connect and custom built backends. I have then integrated this system with our LMS, and POS systems.

Tech & Tools: ReactJS, NodeJs, Mongo, Adobe Connect, Mysql, PHP, Golang, C#, .Net Core, Java

Full Stack Developer at Cake Creative Digital Lab

Kuala Lumpur, Malaysia

Jun 2015 - Nov 2016

- Engaged in diverse web development projects, including front-end design and e-commerce, enhancing system customization and exclusivity.
- Reduced rework by 22% and cut costs by 15% by engineering a reusable utilities library.
- Achieved high user experience scores across all web development projects, ensuring an intuitive and effective user interface.
- Optimized project performance to consistently meet or exceed a 95% Google Pagespeed score.
- Conceptualized and prototyped an average of 25 new product features annually, significantly contributing to product enhancement.
- Led the development of a website that garnered the 2015 Malaysia Website Award for outstanding UI/UX and structure.
- Played a key role in the full project lifecycle, from development and maintenance to deployment, emphasizing robust and scalable solutions.
- Collaborated with the development team to ascertain user requirements, formulate use cases, prioritize tasks, and draft comprehensive documentation.
- Conducted thorough analyses of web-based systems to identify and rectify defects, bolster performance, and fortify security measures.

Tech & Tools: Wordpress, Magento, Opencart, AngularJS, Vanilla JS, PHP, C#, .Net Core, Golang

Workshop Assistant, Python Developer at Kidocode

Kuala Lumpur, Malaysia

Feb 2015 - May 2015

- Completed a 3-month internship, during which I facilitated Python, NoSQL, Cloud, and Web Development workshops at various universities in Kuala Lumpur, enhancing educational outreach and technology adoption.
- Diagnosed and resolved student's coding issues during workshop sessions, ensuring smooth and effective learning experiences.
- Played a role in the development of the company's loyalty campaign platform, coding various aspects from database to frontend.
- Engaged in youth education initiatives, teaching programming fundamentals through both hands-on (plugged) and theoretical (unplugged) methods, fostering early interest in technology.

Tech & Tools: Django, Numpy, Matplotlib, AngularJS, Mongo, Python

Education

B.S.C in Software Engineering (Dual Degree)	Staffordshire University	Jan 2012 – April 2015
B.S.C in Software Engineering (Dual Degree)	Asia Pacific University of Technology	Jan 2012 – April 2015
M.S.C in Software Engineering	Staffordshire University	Setember 2015 – Feb 2017
P.H.D in Computer Science	Auckland University of Technology	Feb 2019 – September 2024
Nano Degree in Data Architecture	Udacity	Dec 2022 – Feb 2023

Certificates

PyResearcher - Sixty Hours (Python - Mongodbs - Numpy - Matplotlib - Pandas)	Pycademy	April 2015
MCPS: Microsoft Certified Professional	Microsoft	October 2015

Publications

Book

- Ataei, P. (2017). *The Nexus Methodology: A Trenchant Approach Toward Big Data*. LAP LAMBERT Academic Publishing.

Journal Articles

- Ataei, P. (2024). Cybermycelium: a reference architecture for domain-driven distributed big data systems. *Frontiers in Big Data*, 7, 1448481.
- Ataei, P., Regula, S., Haertel, C., & Staegemann, D. (2024). Impact of big data analytics on business performance: A systematic literature review. *International Journal of Information Management*.
- Ataei, P., Regula, S., & Staegemann, D. (2024). Filtering Useful App Reviews Using Naive Bayes—Which Naive Bayes? *AI*, 5(4), 2237-2259.
- Atemkeng, M., Hamlomo, S., Welman, B., Oyetunji, N., Ataei, P., & Fendji, J. L. K. (2024). Ethics of Software Programming with Generative AI. *arXiv preprint arXiv:2408.10554*.
- Ataei, P., & Staegemann, D. (2023). Application of microservices patterns to big data systems. *Journal of Big Data*, 10(1), 1-49.
- Ataei, P., & Litchfield, A. (2022). The state of big data reference architectures: a systematic literature review. *IEEE Access*.
- Bashari Rad, B., & Ataei, P. (2017). The big data ecosystem and its environs. *International Journal of Computer Science and Network Security*, 17(3), 38.
- Bashari Rada, B., Ataeib, P., Khakbizc, Y., & Akbarzadehd, N. (2017). The hype of emerging technologies: Big data as a service. *International Journal of Control Theory Applications*, 9(43), 1-18.
- Bashari Rad, B., Akbarzadeh, N., Ataei, P., & Khakbiz, Y. (2016). Security and privacy challenges in big data era. *International Journal of Control Theory and Applications*, 9(43), 437-448.
- Bashari Rad, B., & Ataei, P. (2017). Evaluating Major Issues Regarding Reliability Management for Cloud-based Applications. *International Journal of Computer Science and Network Security*, 17(7), 168.

Conference Proceedings

- Ataei, P., Thorpe, S., Regula, S., & Staegemann, D. (2024). Why Big Data Projects Fail? A Systematic Literature Review. *ICICT 2024*.
- Ataei, P., & Litchfield, A. (2023). Towards a domain-driven distributed reference architecture for big data systems. *AMCIS 2023*.
- Ataei, P., & Litchfield, A. (2021). NeoMycelia: A software reference architecture for big data systems. *28th Asia-Pacific Software Engineering Conference (APSEC)*, 452-462.
- Ataei, P., & Litchfield, A. (2020). Big Data Reference Architectures: A Systematic Literature Review. *31st Australasian Conference on Information Systems (ACIS)*, 1-11.
- Staegemann, D., Ataei, P., et al. (2024). An Overview on Testing Big Data Applications. *Ninth International Congress on Information and Communication Technology*, Lecture Notes in Networks and Systems.

Community Engagement

- **IEEE Computer Society**
Academic Contributor Jan 2021 - Present
- **Association for Information Systems (AIS)**
Academic Contributor May 2019 - Present

Presentations Delivered

- International Conference on Control, Electronics and Computer Technology - ICCEIT 2017, India 2017
- International Conference on Control, Electronics, and Computer Technology - ICCECT 2017, Malaysia 2017
- Australasian Conference on Information Systems - ACIS, New Zealand 2019
- American Conference on Information Systems - AMCIS, USA 2020
- Asia-Pacific Software Engineering Conference - APSEC, Taiwan 2021
- Kafka and Terraform Meetup - Confluent, New Zealand 2023
- Geekle- World Global React Conference Multiple (Latest in 2023)
- American Conference on Information Systems - AMCIS, USA 2024
- Many other conferences.