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Executive Summary

Passionate about building AI systems rooted in first principles, striving to fully understand their capabilities and limitations. I enjoy deconstructing complex problems to reveal their underlying structure, balancing rigorous technical analysis with strategic, big-picture thinking. My current research explores pushing the boundaries of parameter efficiency—through techniques such as scaling laws, shape optimization, and recursive inference—without compromising on critical dimensions like fairness, safety, and cultural diversity.

Professional Experience

Google DeepMind

Nov 2019 – Present

Senior Research Scientist / Zürich, Switzerland

- AI Scaling & Efficiency:** Leading research on parameter efficiency, including scaling laws, pioneering shape optimization (SoViT), and recursive inference to enable “System 2” latent reasoning. Contributed to major scaling efforts for vision and multimodal systems (FlexiViT, NaViT, PaLI, ...).
- Open-Source:** Key technical contributor to open-source multimodal systems **PaliGemma** and **SigLIP2**. Currently a core member of the **Gemma** team, developing next-generation large-scale models.
- Ethics & Robustness:** Leading initiatives to ensure models are fair and robust across cultural and socioeconomic dimensions. Spearheaded projects on mitigating biases, improving cultural diversity, and red-teaming.

Saudi Aramco

Nov 2017 – Oct 2019

Head of Enterprise Analytics & Technical Lead of Digital Transformation / Dhahran, Saudi Arabia

- Digital Transformation Leadership:** Founded and led the company’s first Advanced Analytics team. Served as Technical Lead for the corporate Digital Transformation Program, accelerating AI adoption across the world’s largest energy infrastructure.
- Process Optimization:** Designed and deployed ML applications for downstream, supply chain, and sales, as well as HR, finance, and IT.
- Talent Ecosystem Building:** Spearheaded the rollout of the “Data Science” specialization and launched a hosted M.S. in Analytics program, graduating 30+ students to build internal capacity.

Saudi Aramco

Jun 2011 – Aug 2012 & Jul 2005 – Aug 2009

Network Engineer & Project Manager / Dhahran, Saudi Arabia

- Infrastructure Strategy:** Managed capacity planning for enterprise data centers and global internet connectivity. Developed analytical tools for automated SLA compliance assessment.
- Project Management:** Led critical infrastructure projects, including an 18-month IT network security initiative for critical facilities and a year-long civil/comms CCTV surveillance project.
- Operational Excellence:** Recipient of multiple recognition awards at the Senior VP level (2007, 2009, 2012) for developing innovative solutions and distinguished achievement in operations.

Education

King Abdullah University of Science and Technology (KAUST)

2012 – 2017

Ph.D. in Computer Science | GPA: 4.0/4.0

- Thesis:** “Learning via Query Synthesis”. Committee: X. Zhang (KAUST), X. Gao (KAUST), D. Keyes (KAUST), W. Wang (UCLA).
- Distinction:** During doctoral studies, authored and published the textbook *Summability Calculus: A Comprehensive Theory of Fractional Finite Sums* (Springer, 2018).

Stanford University

2009 – 2011

M.S. in Electrical Engineering | GPA: 4.15/4.0

- **Focus:** Networked Systems, Artificial Intelligence, and Operations Management.

University of Nebraska-Lincoln

2000 – 2005

B.S. in Computer Engineering, Minor in Economics | GPA: 3.98/4.0

- **Honors:** Highest Distinction; Superior Scholarship Award.

Community Leadership & Global Impact

- **Global Policy:** Member of the **2019 S20 Task Force (Digital Revolution)**, serving as a scientific advisor to the G20 on digital governance.
- **Scientific Diplomacy:** Chair of the AI track at the **2019 Arab-American Frontiers Symposium** (U.S. National Academies), held in Cairo, 2019.
- **Regional Development:** Co-organizer of **2025 MenaML** (Middle East & North Africa Machine Learning), fostering AI talent and education in the region.
- **Academic Stewardship:** Area Chair for **NeurIPS** and **ICML**. Recipient of “Outstanding Reviewer” awards at ICML 2020 and NeurIPS 2022, 2023.

Featured Results

- **Media Coverage:** Profiled on the Saudi National TV program **“Josoor” (Bridges)**, a 30-minute documentary highlighting the journey of bridging Western scientific rigor with Middle Eastern innovation.
- **Mathematical Legacy:** Derived novel identities in *Summability Calculus* that are now featured in the permanent mathematical record:
 - **Wikipedia:** Closed-form expressions relating the Euler-Mascheroni constant to approximation errors ([Link](#)) and identities involving Gregory coefficients ([Link](#)).
 - **OEIS:** Sequences and series summation results archived in the *On-Line Encyclopedia of Integer Sequences* ([A002206](#)).