

I am a research scientist at Google Brain, developing tools for understanding deep learning and improving its societal impact, particularly relating to fairness. Previously, I founded and led the Advanced Analytics team at Saudi Aramco, managed the company's Enterprise Analytics program, and was a technical lead at its digital transformation program.

## EDUCATION

### Doctor of Philosophy - PhD, Computer Science, KAUST, GPA: 4.0 / 4.0

Thesis title: "Learning via Query Synthesis." Committee: X. Zhang, X. Gao, D. Keyes (KAUST), and W. Wang (UCLA). 2012 — 2017

### Master of Science, Electrical Engineering, Stanford University, GPA: 4.15 / 4.0

Emphasis on networked systems, artificial intelligence, and operations management. 2009 — 2011

### Bachelor of Science, Computer Engineering, University of Nebraska, Lincoln, GPA: 3.98 / 4.0

Highest Distinction; Superior Scholarship Award; Minor in Economics. 2000 — 2005

## SKILLS

<b>Research &amp; Development</b>	Authored 1 book, +25 research papers, 1 granted patent and 3 pending patents.
<b>Communication</b>	English (fluent), Arabic (native), German (elementary, A1).
<b>Technical</b>	Data science, artificial intelligence, modeling & optimization, digital transformation, networked systems (certified by Cisco, Juniper and Alcatel-Lucent).
<b>Leadership</b>	+2 years managing corporate-wide enterprise analytics program, leading the data science team, and serving as a technical lead at the digital transformation program at Saudi Aramco.

## SELECTED ACTIVITIES

Program committee member at NeurIPS, ICML, ICLR, CVPR, AAAI, and IJCAI.	2017 — Present
Reviewer for TMLR, IEEE PAMI, IEEE TNNLS, and IEEE Communications Letters.	2019 — Present
Member of the S20 Task Force (Digital Revolution).	2020
Chair of AI track of the 2019 Arab-American Frontiers Symposium.	2019

## PROFESSIONAL EXPERIENCE

### RESEARCH & DEVELOPMENT SCIENTIST

Google, Brain Team

NOV 2019 — Present

Zürich, Switzerland

- Led / co-led several projects on deep learning and ethical AI; e.g. pretraining with random labels, debiasing neural networks, debiasing multiclass datasets, data scaling laws, scaling ViTs, reinitialization and calibration/robustness.
- Member of moonshot teams; e.g. grand vision and ML fairness in healthcare.
- Member of the Google Scholarship Review Team and mentor of AI residents.

### LEAD, ADVANCED ANALYTICS

Saudi Aramco, Corporate Applications Dept

NOV 2017 — OCT 2019

Dhahran, Saudi Arabia

- Founded and led the Advanced Analytics team that was responsible for developing AI solutions, managing analytics infrastructures, conducting research collaboration with academia, evaluating technologies, and developing roadmaps.
- Technical lead at the Digital Transformation Program, with a mission to accelerate the adoption of artificial intelligence at the company.
- Led the design & implementation of several ML applications in sectors such as downstream, supply chain, sales & marketing, IT, cybersecurity and HR.

### NETWORK PERFORMANCE ENGINEER

Saudi Aramco, Comm. Eng. Department

JUN 2011 — AUG 2012

Dhahran, Saudi Arabia

- Won the Operation Services Business Line recognition award (2012) for "distinguished achievements."
- Performance management and capacity planning for enterprise communications services such as the Data Center, the Internet, Extranet, and Wireless LAN infrastructures.
- Developed an analytics tool for automated performance analysis and SLA compliance assessment.

### DATA NETWORK ENGINEER

Saudi Aramco, Comm. Eng. Department

JUL 2005 — AUG 2009

Dhahran, Saudi Arabia

- Won the Information Technology Admin Area recognition award (2007) for "developing innovative solutions" and the Communications Eng Dept recognition award (2009) for "significant contributions to department's success."
- Key member of an 18-month IT network security project for securing critical facilities.
- Project manager for a 1-year CCTV surveillance camera systems project (involving civil and communications work).
- Design, installation, configuration, reviews, upgrades, and troubleshooting of data networks.

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## BOOKS

Ibrahim Alabdulmohsin, *Summability Calculus: A Comprehensive Theory of Fractional Finite Sums*, Springer, 2018.

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## RECENT PREPRINTS

- Lucas Beyer, Pavel Izmailov, Alexander Kolesnikov, Mathilde Caron, Simon Kornblith, Xiaohua Zhai, Matthias Minderer, Michael Tschannen, [Ibrahim Alabdulmohsin](#), Filip Pavetic: “FlexiViT: One Model for All Patch Sizes.”, arXiv:2212.08013, 2022.
- Amr Khalifa\*, Michael C. Mozer, Hanie Sedghi, Behnam Neyshabur, [Ibrahim Alabdulmohsin\\*](#): “Layer-Stack Temperature Scaling.” arXiv:2211.10193, 2022.

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## PUBLICATIONS

- [Ibrahim Alabdulmohsin](#), Nicole Chiou, Alexander D’Amour, Arthur Gretton, Sanmi Koyejo, Matt J. Kusner, Stephen R. Pfohl, Olawale Salaudeen, Jessica Schrouff, Katherine Tsai: “Adapting to Latent Subgroup Shifts via Concepts and Proxies.”, **AISTATS**, 2023.
- [Ibrahim Alabdulmohsin](#), Behnam Neyshabur, Xiaohua Zhai: “Revisiting Neural Scaling Laws in Language and Vision.”, **NeurIPS**, 2022.
- [Ibrahim Alabdulmohsin](#), Jessica Schrouff, Oluwasanmi Koyejo: “A Reduction to Binary Approach for Debiasing Multiclass Datasets.”, **NeurIPS**, 2022.
- Jessica Schrouff, Natalie Harris, Oluwasanmi Koyejo, [Ibrahim Alabdulmohsin](#), Eva Schnider, Krista Opsahl-Ong, Alexander Brown, Subhrajit Roy, Diana Mincu, Christina Chen, Awa Dieng, Yuan Liu, Vivek Natarajan, Alan Karthikesalingam, Katherine A. Heller, Silvia Chiappa, Alexander D’Amour: “Maintaining fairness across distribution shift: do we have viable solutions for real-world applications?” **NeurIPS**, 2022.
- Alexander Soen, [Ibrahim Alabdulmohsin](#), Sanmi Koyejo, Yishay Mansour, Nyalleng Moorosi, Richard Nock, Ke Sun, Lexing Xie: “Fair Wrapping for Black-box Predictions.”, **NeurIPS**, 2022.
- [Ibrahim Alabdulmohsin](#), Mario Lucic: “A Near-Optimal Algorithm for Debiasing Trained Machine Learning Models.”, **NeurIPS**, 2021.
- [Ibrahim Alabdulmohsin](#), Larisa Markeeva, Daniel Keysers, Ilya O. Tolstikhin: “A Generalized Lottery Ticket Hypothesis.”, **SNN**, 2021.
- [Ibrahim Alabdulmohsin](#), Hartmut Maennel, Daniel Keysers: “The Impact of Reinitialization on Generalization in Convolutional Neural Networks.”, CoRR abs/2109.00267, 2021.
- [Ibrahim Alabdulmohsin](#): “A Generalization of Classical Formulas in Numerical Integration and Series Convergence Acceleration.”, CoRR abs/2106.07621, 2021.
- Hartmut Maennel\*, [Ibrahim Alabdulmohsin\\*](#), Ilya O. Tolstikhin, Robert J. N. Baldock, Olivier Bousquet, Sylvain Gelly, Daniel Keysers: “What Do Neural Networks Learn When Trained With Random Labels?” **NeurIPS**, 2020.
- [Ibrahim Alabdulmohsin](#): “Towards a Unified Theory of Learning and Information.”, **Entropy** 22(4), 2020.
- [Ibrahim Alabdulmohsin](#): “Information Theoretic Guarantees for Empirical Risk Minimization with Applications to Model Selection and Large-Scale Optimization.”, **ICML**, 2018.
- [Ibrahim Alabdulmohsin](#): “Axiomatic Characterization of AdaBoost and the Multiplicative Weight Update Procedure.”, **ECML/PKDD**, 2018.
- [Ibrahim Alabdulmohsin](#): “An Information-Theoretic Route from Generalization in Expectation to Generalization in Probability.”, **AISTATS**, 2017.
- [Ibrahim Alabdulmohsin](#), Moustapha Cisse, Xin Gao, Xiangliang Zhang: “Large margin classification with indefinite similarities”, **Machine Learning Journal** 103(2), 2016.
- [Ibrahim Alabdulmohsin](#), Yufei Han, Yun Shen, Xiangliang Zhang: “Content-Agnostic Malware Detection in Heterogeneous Malicious Distribution Graph”, **CIKM**, 2016.
- [Ibrahim Alabdulmohsin](#), Moustapha Cissé, Xiangliang Zhang: “Is Attribute-Based Zero-Shot Learning an Ill-Posed Strategy?”, **ECML/PKDD**, 2016.
- [Ibrahim Alabdulmohsin](#), Xin Gao, Xiangliang Zhang: “Efficient Active Learning of Halfspaces via Query Synthesis”, **AAAI**, 2015.
- [Ibrahim Alabdulmohsin](#): “Algorithmic Stability and Uniform Generalization.”, **NeurIPS**, 2015.
- [Ibrahim Alabdulmohsin](#), Xin Gao, Xiangliang Zhang: “Support vector machines with indefinite kernels.”, **ACML**, 2014.
- [Ibrahim Alabdulmohsin](#), Xin Gao, Xiangliang Zhang: “Adding Robustness to Support Vector Machines Against Adversarial Reverse Engineering.”, **CIKM**, 2014.
- [Ibrahim Alabdulmohsin](#), Amal Hyadi, Laila H. Afify, Basem Shihada: “End-to-end delay analysis in wireless sensor networks with service vacation.”, **WCNC**, 2014.