Dr. Christian A. Schroeder de Witt

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Education

University of Oxford, St Catherine's College DPhil in Artificial Intelligence at the Engineering Department (Jan 2017 - Sep 2021) under supervision of Prof. Philip Torr • PhD Thesis: *'Coordination and Communication in Deep Multi-Agent Reinforcement Learning.'*

University of Oxford, Kellogg College Master of Science in Computer Science (Oct 2012 - Sept 2013) • *Selected Coursework: Concurrency, Concurrent Programming, Database Systems Implementation, Categorical Quantum Mechanics, Lambda Calculus and Types* • Master thesis under supervision of Prof. Bob Coecke: *'The ZX-calculus is Incomplete for Quantum Mechanics.'.* • Academically distinguished, thesis led to a well-cited publication.

University of Oxford, Exeter College Master of Physics (Oct 2008 - July 2012) • *Selected Coursework: Theoretical Physics, Laser science and quantum information processing* • Thesis under supervision of Prof. Ard Louis: *'Genetic Algorithms and Biological Evolution'.* • First class (academically distinguished), master's thesis was awarded Oxford University Tessella Prize. Awarded East Exhibition from 2009 to 2012.

Brandon University, MB 1st year of BMus Music and 2nd year of BSc Physics [double major] (Sep 2007 - Jul 2008) • *Selected Coursework: Applied Concentration (A^+), Calculus IV (A^+), Music Theory (A^+)* . GPA: 4.09/4.3 (President's Honour Society). Admitted to four-year piano performance concentration program with an international student scholarship.

TU Kaiserslautern, DE 1st semester of Physics Diploma (2005)
One of the only high schoolers in Germany to pass first semester of university physics at age 14.

Current and Future Positions

University of Oxford (Jan 2022 - today)
Postdoctoral Research Assistant, Department of Engineering Science
- Named PDRA sponsored by Cooperative AI Foundation (PI: Prof. Jakob Foerster).

I was shortlisted (top 5 / 135 applicants) for an Associate Professorship with the University of Oxford (Department of Computer Science) in January 2023.

Scholarships, Awards, Grants and Prizes

- **Fellow of the Schmidt Futures International Strategy Forum (Europe, 2022/23)**. Selected to work with European Council on Foreign Affairs as one of Europe's top 30 under 35 rising strategists in technology and geopolitics. Nominated by the Vice-Chancellor of the University of Oxford as 'one of the most exemplar individuals [she has] encountered in the past ten years.'
- **ELLIS Member (since Jan 2023)**.
- Awarded **Armasuisse Science + Technology grant (£85k in 2022, £65k in 2023 - ca. £215k until 2024)** for research in cybersecurity, deep multi-agent learning, and agent-based modeling. The grant arose out of my former relationship with Armasuisse, and I conceptuated and wrote the proposal. The grant is understood to be continued for the next two years at similar annual rates. Prof. Jakob Foerster serves as pro-forma PI, although I am serving as PI de-facto.
- **Officially recognised Co-Editor on ERC Starter Grant (PI: Prof. Jakob Foerster, awarded €2.3m)**. I have been contributing to the research proposal writing, and I have taken full responsibility of the ethics statement on research involving both AI, and human participants (10 pages).
- **Google Cloud Academic Research Grant (2022)** awarded for a geoengineering research project.
- Named Researcher in **Cooperative AI Foundation** grant (PI: Prof. Jakob Foerster).
- Principal grantee on **Microsoft AI for Earth grant (2021)** for AI method development to finding optimal macro-strategies for the net-zero energy transition using deep multi-agent learning and agent-based modeling.
- Awarded prestigious **EPSRC IAA Doctoral Impact Fund (£30k, 2022)** to further develop and deploy secure steganography solutions that I co-invented during my DPhil research.
- **Climate Change and AI Community Grant (shortlisted)**. Conceptuated and wrote majority of a $120k$ grant proposal on AI and decision-making under uncertainty for the energy transition. Proposal was classified as top 20% (acceptance rate: 7 %).
- **Global finalist at Schmidt Science Fellowship competition (2021).** Nominated as one of the University of Oxford's most promising DPhil students and subsequently shortlisted for the final round of this extremely competitive fellowship with a NASA-backed project proposal on climate science and aerosol physics.
- Awarded a **Doctoral Studentship by Armasuisse Science + Technology (2020-21)**. Full funding for the fourth year of my DPhil studies.
- Awarded **Google TPU Research Cloud grant (2019)** for geoengineering research.
- **Best Idea Award (2019)** for "Stratospheric Aerosol Injection as a Deep Reinforcement Learning Problem" by the international Climate Change and AI (CCAI) community at ICML.
- **Oxford University Tessella Prize for Innovation in Software (2012).** Awarded for MPhys thesis "Genetic Algorithms and Biological Evolution" (supervised by Prof. Ard Louis).
- **Fitzgerald Prize (2012)** awarded by Exeter College, University of Oxford.
- **Studienstiftung des Deutschen Volkes (2011)**. In Germany the top 0.5% of high school graduates get selected for funding by the German Academic Foundation (also known as German Merit Foundation).

- **Jean McKinnon Scholarship for Solo Piano Performance (2008)**. Awarded a special prize at Brandon Festival of the Arts.
- Award from the German Physics Society for "Abitur" performance (2007)

SELECTED CONFERENCE AND JOURNAL PUBLICATIONS (* DENOTES EQUAL CONTRIBUTION)

- '*Perfectly-Secure Steganography through Minimum Entropy Coupling*', <u>CS de Witt*</u>, S Sokota*, JZ Kolter, JN Foerster, M Strohmeier, **ICLR 2023**
- '*Cheap Talk Discovery and Utilization in Multi-Agent Reinforcement Learning*', YL Lo, <u>CS de Witt</u>, S Sokota, J Foerster, S Whiteson, **ICLR 2023**
- '*Equivariant Networks for Zero-Shot Coordination*', D Muglich, <u>CS de Witt</u>, E van der Pol, S Whiteson, JN Foerster, **NeurIPS 2022**
- '*Discovered Policy Optimisation*', C Lu, JG Kuba, A Letcher, L Metz, <u>CS de Witt</u>, JN Foerster, **NeurIPS 2022**
- '*Communicating via Markov Decision Processes*', S Sokota*, <u>CS de Witt*</u>, M Igl, L Zintgraf, PHS Torr, S Whiteson, J Foerster, **ICML 2022**
- '*Generalized Beliefs for Cooperative AI*', D Muglich, L Zintgraf, <u>CS de Witt</u>, S Whiteson, J Foerster, **ICML 2022**
- '*Model-Free Opponent Shaping*', C Lu, T Willi, <u>CS de Witt</u>, J Foerster, **ICML 2022**
- '*Mirror Learning: A Unifying Framework of Policy Optimisation*', J Grudzien, <u>CS de Witt</u>, J Foerster, **ICML 2022**
- '*Amortized Rejection Sampling in Universal Probabilistic Programming*', S Naderiparizi, A Scibior, A Munk, M Ghadari, AG Baydin, B Gram-Hansen, <u>CS de Witt</u>, R Zinkov, P Torr, T Rainforth, YW Yeh, F Wood, **AISTATS 2022**
- '*FACMAC: Factored Multi-Agent Centralised Policy Gradients*', B Peng*, T Rashid*, <u>CS de Witt*</u>, PA Kamienny, P Torr, W Boehmer, S Whiteson, **NeurIPS 2021**
- '*RainBench: Towards Data-Driven Global Precipitation Forecasting from Satellite Imagery*', <u>CS de Witt*</u>, C Tong*, V Zantedeschi, D De Martini, A Kalaitzis, M Chantry, D Watson-Parris, P Bilinski, Proceedings of the AAAI Conference on Artificial Intelligence 35:17, **AAAI 2021**
- '*Randomized Entity-Wise Factorization for Deep Multi-Agent Reinforcement Learning*', S Iqbal, <u>CS de Witt</u>, B Peng, W Böhmer, S Whiteson, F Sha, 2020, **ICML 2021**
- '*Multi-Agent Common Knowledge Reinforcement Learning*', <u>CS de Witt*</u>, J Foerster*, G Farquhar, P Torr, W Boehmer and S Whiteson, Advances in Neural Information Processing Systems, 9924-9935. **NeurIPS 2019**
- '*Monotonic Value Function Factorisation for Deep Multi-Agent Reinforcement Learning*', T Rashid*, M Samvelyan*, <u>CS de Witt</u>, Gregory Farquhar, Jakob Foerster and Shimon Whiteson, Journal of Machine Learning Research 21:178, **JMLR 2020**
- '*The Starcraft Multi-Agent Challenge*', M Samvelyan*, T Rashid*, <u>CS de Witt</u>, G Farquhar, N Nardelli, TGJ Rudner, CM Hung, PHS Torr, J Foerster, S Whiteson, **AAMAS 2019**
- '*Efficient Bayesian Inference for Nested Simulators*', B Gram-Hansen, <u>CS de Witt</u>, R Zinkov, S Naderiparizi, A Scibior, A Munk, F Wood, M Ghadari, P Torr, AG Baydin, YW Teh, T Rainforth, **AABI 2019**
- '*QMIX: Monotonic Value Function Factorisation for Deep Multi-Agent Reinforcement Learning*', T Rashid*, M Samvelyan*, <u>CS de Witt</u>, Gregory Farquhar, Jakob Foerster and Shimon Whiteson, **ICML 2018**
- '*The ZX-calculus is Incomplete for quantum mechanics*', <u>CS de Witt</u>, Vladimir Zamdzhiev, **Quantum Physics and Logic (QPL) 2014**

SELECTED WORKSHOP PAPERS AND PRE-PRINTS (* DENOTES EQUAL CONTRIBUTION)

- '*Illusory Adversarial Attacks on Sequential Decision Makers and Countermeasures*', T Franzmeyer, JF Henriques, JN Foerster, PHS Torr, A Bibi, <u>CS de Witt</u>, **arXiv:2207.10170 [cs.AI]**
- '*Revealing Robust Oil and Gas Company Macro-Strategies Using Deep Multi-Agent Reinforcement Learning*', D Radovic, L Kruitwagen, <u>CS de Witt</u>, B Caldecott, S Tomlinson, M Workman, SSRN 3933996, **under review at iScience (Cell Press)**
- '*Fixed Points in Cyber Space: Rethinking Optimal Evasion Attacks in the Age of AI-NIDS*', <u>CS de Witt</u>, Y Huang, P H.S. Torr, M Strohmeier, **Spotlight Talk** at **ML4Cyber Workshop (ICML 2022)**
- '*Is Independent Learning All You Need in the StarCraft Multi-Agent Challenge?*', <u>CS de Witt*</u>, T Gupta*, D Makoviichuk, V Makoviychuk, P Torr, M Sun, S Whiteson, arXiv:2011.09533, 2020.
- '*Deep Multi-Agent Reinforcement Learning for Decentralized Continuous Cooperative Control*', <u>CS de Witt*</u>, B Peng*, PA Kamienny, P Torr, W Boehmer and S Whiteson, arXiv:2003.067092020, 2020.
- '*RainBench: Towards Data-Driven Global Precipitation Forecasting from Satellite Imagery*', <u>CS de Witt*</u>, C Tong*, V Zantedeschi, D De Martini, A Kalaitzis, M Chantry, D Watson-Parris, P Bilinski, **Spotlight** at both **CCAI and AI4Earth at NeurIPS 2020**, also presented at **EGU 2021** and **ESIP 2021.**
- '*Simulation-Based Inference for Global Health Decisions*', <u>CS de Witt</u>, N Nardelli, A Gambardella, R Zinkov, P Dokania, N. Siddarth, AB Espinosa-Gonzalez, A Darzi, P Torr, AG Baydin, arXiv:2005.07062, 2020
- '*Stratospheric Aerosol Injection as a Deep Reinforcement Learning Problem*' <u>CS de Witt*</u>, T Hornigold*, 2019, **Spotlight Presentation** and **Best Idea Award** at **CCAI at ICML 2019.**
- '*Safe Screening for Support Vector Machines*', J Zimmert, <u>CS de Witt</u>, G Kerg, M Kloft, **Optimization in Machine Learning (OPT) Workshop at NIPS 2015.**

Patents

- *Perfectly-Secure Steganography through Minimum Entropy Coupling*, CS de Witt, S Sokota, JN Foerster, M Strohmeier, UK patent application number 2209681.2 (pending)

Selected Invited Talks, Guest Lectures and Presentations

- **Invited Talk** at Cyber Alp 2023 Conference (Switzerland).
- **Invited Talk** *Bringing Multi-Agent Learning to Societal Impact* at MIT, Media Lab (in-person, 2023)
- **Invited Talk** *Bringing Multi-Agent Learning to Societal Impact* at NYU, Data Science Center (in-person, 2023)
- **Invited Talk** *Bringing Multi-Agent Learning to Societal Impact* at Schmidt Futures, New York Office (in-person, 2023)
- **Invited Talk** *Bringing Multi-Agent Learning to Societal Impact* at MILA, Quebec AI Institute (in-person, hosted by Prof. Yoshua Bengio, 2023)
- **Invited Talk** *Bringing Multi-Agent Learning to Societal Impact* at ELLIS Symposium (in-person, hosted by Prof. Bernhard Schoelkopf, 2023)
- **Invited Public Talk** on AI for Climate Policy: The Road to Impact (Salesforce/MILA AI4GCC seminar, 2022).
- **Invited Talk** *Deep Multi-Agent Learning for Strategic Decision-Making and Mechanism Design* at Oxford Institute for New Economic Thinking (2022).
- **Spotlight Talk** at ML4Cyber (ICML 2022).
- **Invited Talk** at Cyber Alp 2022 Conference (Switzerland).
- **Invited Discussant at talk** *Edward Hughes – Cultural Evolution as a Cooperative AI Generating Algorithm* hosted by Cooperative AI Foundation.
- **Spotlight presentations** "RainBench: Towards Data-Driven Global Precipitation Forecasting from Satellite Imagery" at CCAI and AI4Earth workshops at NeurIPS 2020 (remote)
- **Invited talk** "Stratospheric Aerosol Injection as a Deep Reinforcement Learning Problem" at NVidia GTC 2020, (San Jose, CA, 2020)
- **Invited talk** "Multi-Agent Common Knowledge Reinforcement Learning" at Edinburgh Centre For Robotics, UK (Edinburgh, 2020)
- **Invited talk** "Deep Multi-Agent Reinforcement Learning for Decentralized Continuous Cooperative Control" at SDU UAS drone center (Odense, DK 2020)
- Poster presentation at Neural Information Processing Systems (NeurIPS, Vancouver, 2019)
- **Spotlight presentation** "Stratospheric Aerosol Injection as a Deep Reinforcement Learning Problem" at Climate Change and AI workshop, (ICML 2019, Los Angeles, CA)
- **Invited talk** "Advances in Cooperative Deep Multi-Agent Reinforcement Learning" at Huawei DaVinci Forum (Shanghai, 2018)

Community contributions

- Since June 2022: Advisor at the Salesforce/MILA AI for Global Climate Cooperation (together with Richard Socher, Prof Vincent Connitzer, and Prof. David Victor).
- Main organiser of 2*nd* AI for Agent-Based Modelling (AI4ABM) workshop at ICLR 2023 (May 2023, Kigali/Rwanda).
- Co-Organiser of the Workshop *Benchmarks for AI in Finance* at ICAIF-22.
- Area Chair (AI4ABM at ICML 2022).
- Main organiser of AI for Agent-Based Modelling (AI4ABM) workshop at ICML 2022. Ideated and authored the workshop application and took full responsibility of the workshop's organisation. Attracted 30+ Program committee members, and industry sponsorship (Improbable).
- Chair of the International AI for Agent-Based Modelling Community (`ai4abm.org`, since January 2022). I ideated and co-founded the community, and chair the biweekly events.
- Reviewer for NeurIPS, ICML, ICLR, IROS, Journal of Artificial Intelligence (AIJ)
- Program committee for Cooperative AI Workshop, CCAI, and AI4Earth workshops
- Member of the European Geosciences Union
- Author of open-source benchmark environments RainBench/PyRain and Multi-Agent Mujoco, co-author of PyMARL and the StarCraft Multi-Agent Challenge.

Supervision and Teaching

- Since Aug 2022: CDT Teaching Assistant (University of Oxford). I am being paid for developing my own 12-hour lecture series (plus labs) on Cooperative AI, which I will personally deliver to PhD students from March 2023.
- CERI Summer Research Fellowship mentor (2022)
- Since Oct 2021: Teaching undergraduate course *CSCI 4550: Artificial Intelligence* for University of Georgia (UGA) at Oxford Program. Weekly tutorial/lecture sessions based on my own course design.
- Successfully (co-)supervised eleven master's students during the DPhil, resulting in several publications (including at NeurIPS and ICML), and a *Hoare prize for the best thesis in the MSc in Computer Science 2021 (University of Oxford)*
- Led weekly tutorial group for an introductory machine learning course at Humboldt-University Berlin. Attracted highly positive student feedback (2016).
- Conceptualised and delivered a lecture series on Deep Learning for graduate students at Humboldt-University Berlin. Attracted highly positive student feedback (2016).

ESP Forum - Trillium Technologies Ltd., ESA Phi Lab, Oxford University (Aug 2022 - Aug 2023)
Focus Lead
- Paid Focus Lead on *Integrating Knowledge: Speed & Scale*. ESP Forum generates mature consensus on how AI is used with Earth Observation data and digital twinning to inform decision making as we transition to a warmer climate.

Mila – Quebec Artificial Intelligence Institute (Aug 2022 - Aug 2023)
Visiting Researcher, Supervisor: Prof. Yoshua Bengio
- Working on Cooperative AI, climate change, and deep multi-agent learning with Turing Award winner Prof. Yoshua Bengio.

NASA Frontier Development Lab [SETI Institute, Mountain View, CA] (Jul 2022)
Research Advisor (Expert: AI/Climate)
- Advising US Department of Energy projects on Concentrated Solar Power, Fortifying the Grid, and CO_2 Sequestration Geomechanics at FDL's highest level of seniority. All three projects were awarded prizes. Paid position.

Armasuisse Cyber Defense Campus [Zurich] (Sep 2020 - Oct 2020)
Visiting Researcher, Host: Dr. Martin Strohmeier
- Working on applying deep multi-agent reinforcement learning to botnet detection and adversarial hardening using real-world training data from LockedShields exercises.

School of Geography and the Environment (Oxford Net Zero) [Oxford] (May 2020 - Nov 2021)
Part-time Research Assistant, Host: Prof. Myles Allen
- Working with the net zero network, focusing on SME decarbonisation in cooperation with the International Chamber of Commerce, Chapter Zero, We Mean Business, and other organisations. Supervised by Prof Myles Allen.

Open Community for Ethics in Autonomous and Intelligent Systems (OCEANIS) (Since Nov 2018)
Academic Observer
- Personally nominated by VDE CEO Dr. Michael Teigeler to serve on the Steering Committee.

Whiteson Research Lab [Oxford] (Jun 2017 - Jan 2022)
Visiting Postgraduate Student, Host: Prof. Shimon Whiteson
- Working closely with WhiRL on a variety of cooperative deep multi-agent reinforcement learning problems.

Max Planck Institute for Brain Science [Frankfurt, DE] (Nov 2014 - Dec 2014)
Research Intern, Host: Prof. Gilles Laurent
- Developed, implemented, and tested computer vision algorithms for behavioural experiments in turtles using OpenCV and PyQT. Assisted with in-vivo electrophysiology experiments.

Pontificia Universidad Católica de Chile [Santiago de Chile] (Jun 2010 - Jul 2010)
Research Intern, Host: Prof. Felipe Barrientos
- 7-week research project in galaxy morphology at the Department of Astrophysics. Designed and implemented a large-scale image processing tool in Python.
- Debugged and executed the tool on a 512-core supercomputer. Software prototype for final product to be used at the Large Synoptic Survey Telescope.

ESA Frontier Development Lab [Oxford] (Jun 2020 - Aug 2020)
Deep Learning Researcher
- Worked on mid-term precipitation forecasting with deep learning using reanalysis and satellite data. Supervised by Dr. Duncan Watson-Parris and Dr. Matthew Chantry. Funded by European Space Agency.
- Conceptualised and implemented open-source data-driven weather forecasting benchmark environment, RainBench together with novel data pipeline, PyRain.

Google AI [Zurich] (Jul 2019 - Oct 2019)
PhD Research Intern, Host: Dominik Roblek
- Conducted research on self-supervised learning and AutoML.
- Supervised by Prof. Marco Tagliasacchi and Dominik Roblek.

Man AHL [Oxford/London, Centre of Excellence in Machine Learning] (July 2016 - Oct 2016)
Machine Learning Intern, Host: Dr. Anthony Ledford (AHL Chief Scientist)
- Conducted research on deep learning, Bayesian modelling and reinforcement learning involving financial data.

Humboldt University [Berlin] (Jun 2015 - Sep 2016)
Research Fellow (full-time). Funder: Deutsche Forschungsgemeinschaft (DFG)
- Conducted research on topics in convex optimisation and statistical learning theory. Also engaged in voluntary teaching and tutoring.

MenschDanke GmbH [Berlin] (Mar 2014 - Sep 2014)
Head of Engineering
- Interim management (6 months) of a team of 4 in-house developers and 4 external partners.
- Full-stack development (LAMP, MEAN) and agile project management (Scrum) at Germany's third-largest e-Commerce (deals) venture. Negotiated long-term hardware contracts and supervised live product migrations.

Centrica [Oxford] (Oct 2012 - Feb 2013)
Student Consultant - Renewable Energies
- Consulted on tidal energy project and delivered group presentation in front of senior managers.
- Program had competitive admission and required participation in an assessment centre.

EQUALITY, DIVERSITY AND INCLUSION

- Since May 2022 I have been chairing the AI4ABM mentorship program. In my role I attracted industry sponsorship facilitating the participation of 8 mentors and mentees in the AI4ABM @ ICML'22 workshop
- I am mentoring Eshaan Agarwal, an undergraduate student from the University of Georgia (US). Eshaan used to be my student as part of CSCI4551, and is now working with me on predicting earth system response to solar geoengineering.
- Co-supervised a master's student from Eritrea during the DPhil and providing ongoing personal and academic mentorship for a young female AI researcher from Nigeria since 2019. Acquainted with both through Deep Learning Indaba.

GoVolunteer e.V. [Berlin] (Apr 2016 - Jun 2016)
Head of Partner & Project Management
- Facilitated the work of a nation-wide team of over 20 refugee aid coordinators.

PRESS, PUBLIC OUTREACH AND SCIENCE COMMUNICATION

- **Perfectly Secure Steganography** featured by official Oxford University press release, and magazines such as The Engineer, and Cyber Magazine.
- Panel Lead and Discussant on *Evading the Polycrisis: World Wars, Climate Change, Biosecurity, and the Hope of International Institutions* at 2023 **Munich Security Conference** Responsible Leaders Hub (invited by BMW Herbert Quandt Foundation Young Leaders Program and ISF) jointly with Ravi Agrawal (Chief Editor at Foreign Policy), Hina Rabbani Khar (Minister of State for Foreign Affairs, Pakistan), and Ngaire Woods (Dean of the Blavatnik School, Oxford).
- The Sweeping Powers of Model-Free Opponent Shaping (essay commissioned by Cooperative AI Foundation, 2022).
- Co-host of SME decarbonisation workshop at Climate Transformation Summit 2021 (jointly with Jacqueline Albers, International Chamber of Commerce.)
- Frequent public speaker and panel member, including at Fridays for Future (Oxford, 2019).
- Frequent moderator of public panel discussions, including at research events such as ICLR 2021 (with Stuart Russell, Meredith Whittaker, Mary Wareham), and political events (including with Hesse's minister of the environment, Priska Hinz).
- Co-authored commissioned report 'Artificial Intelligence & Climate Change: Supplementary Impact Report' for the Oxford Foundry Impact Challenge.
- Published article 'Climate Change: The Case for Artificial Intelligence' in The Oxford Student

POLITICAL ENGAGEMENT

Oxford Climate Policy Forum [Oxfordshire] (Mar 2014 - Sep 2014)
Ideator and Co-Founder. Endorsed by Caroline Lucas, MP.
- **Oxford Climate Policy Forum (oxcpf.org)** is a unique cross-party initiative of young politicians in Oxfordshire. Endorsed by Caroline Lucas, MP.

UK House of Commons Parliamentary party [Youth branch] (2020)
30 Under 30 Leadership Program.
- Selected as one of the most promising youth politicians by a UK House of Commons Parliamentary party with a strong focus on social and environmental issues.
- Nominated as 2020 city council candidate for Holywell, Oxford. Resigned due to Brexit.

UNFCCC COP 23/24 [Bonn/Katowice] (2017/2018)
NGO observer. Host: An accredited environmental NGO.

- Interviewed one of President Putin's scientific climate advisors on economic sanctions and ARAMCO officials on CCuS technology. Successfully brokered a CCuS workshop participation for Prof. Myles Allen in Riad, Saudi Arabia.

SKILLS AND INTERESTS

- Languages: German (native), English (fluent), Spanish (advanced), French (intermediate), Mandarin (basic, HSK II), Latin (basic).
- Interests: Technology, Entrepreneurship, Music (Classical Piano, Opera Singing), Politics.