

Artsiom Hramyka

CANCER RESEARCH UK FELLOW · COMPUTER SCIENCE & MEDICINE

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Education

University of St Andrews

PHD IN COMPUTER SCIENCE

St Andrews, UK

01/2021 - 12/2025

- Supervisor: Prof. Tom Kelsey
- Thesis Title: 'Bridging the Chasm: Improved Healthcare Using Both Established and Novel Analytical Frameworks'
- Viva passed December 2025; degree awarded. Graduation ceremony: July 2026.

University of St Andrews

MSc ADVANCED COMPUTER SCIENCE

St Andrews, UK

09/2018 - 08/2019

- Thesis Supervisor: Prof. Tom Kelsey

University of St Andrews

BSc COMPUTER SCIENCE AND MATHEMATICS

St Andrews, UK

09/2014 - 06/2018

- Honors thesis/undergrad research advisor: Prof. Peter Cameron and Dr Ishbel Duncan

Appointments

- 2026 - **Principal Investigator, CRUK ACED Pathway Award**, University of Cambridge
- 2024 - **Research Associate, Department of Public Health and Primary Care**, University of Cambridge (Postdoctoral Affiliate of Trinity College)

Publications

PUBLISHED

Modelling Follicular Growth During Ovarian Stimulation Using Agent-based Artificial Intelligence

A Hramyka, T W Kelsey, A Abbata, S Hanassab, T Alhamwi, R Salim, G Trew, S M Nelson, T Heinis, W Dhilllo. *The Journal of Clinical Endocrinology & Metabolism*

Explainable artificial intelligence to identify follicles that optimize clinical outcomes during assisted conception

Simon Hanassab, Scott M. Nelson, Artur Akbarov, Arthur C. Yeung, Artsiom Hramyka, Toulou Alhamwi, Rehan Salim, Alexander N. Comninou, Geoffrey H. Trew, Tom W. Kelsey, Thomas Heinis, Waljit S. Dhilllo, and Ali Abbata. *Nature Communications*

Machine learning to predict interim response in paediatric classical Hodgkin lymphoma using affordable blood tests

Jennifer A. Geel, Artsiom Hramyka, Jan du Plessis, Yasmin Goga, Anel Van Zyl, Thandeka V.Z. Ngcana, Marc G. Hendricks, Elelwani Madzha, Vhutshilo Netshituni, Thanushree Naidoo, Liezl Du Plessis, Rema Mathew, Lizette Louw, Amy Carr, Beverley Neethling, Tanya Schickerling, Fareed Omar, Katherine Eyal, Tom Kelsey, Daynia E. Ballot, Monika L. Metzger. *Journal of Clinical Oncology Global Oncology*

The impact of ethnicity on clinical outcomes in women undergoing IVF treatment

Ell Loukily, Simon Hanassab, Scott M. Nelson, Artur Akbarov, Tom W. Kelsey, Artsiom Hramyka, Arthur C. Yeung, Sotirios Saravelos, Rehan Salim, Alexander N. Comninou, Geoffrey H. Trew, Thomas Heinis, Waljit S. Dhilllo, Ali Abbata, *British Fertility Society Conference, 2024*

P-700 Modelling individual follicle growth rates during ovarian stimulation in medically assisted reproduction cycles to enable prediction of final follicle profiles

Hramyka, A., Kelsey, T., Hanassab, S., Nelson, S., Yeung, A., Salim, R., Comninou, A., Tsaneva-Atanasova, K., Voliotis, M., Trew, G., Heinis, T., Dhillon, W., Abbata, A. 2024. *Human Reproduction*. 39, Supplement 1, p. deae108.1030

O-219 Explainable artificial intelligence (XAI) to determine the follicle sizes on trigger day that maximize mature oocyte yield

Hanassab, S., Nelson, S. M., Akbarov, A., Yeung, A. C., Hramyka, A., Alhamwi, T., Salim, R., Comninou, A. N., Trew, G. H., Kelsey, T. W., Heinis, T., Dhillon, W. S., Abbata, A. 2024. *Human Reproduction*. 39, Supplement 1, p. deae108.258

Machine Learning and External Validation of the IDENTIFY Risk Calculator for Patients with Haematuria Referred to Secondary Care for Suspected Urinary Tract Cancer

Sinan Khadhoury, Artsiom Hramyka, Kevin Gallagher, Alexander Light, Simona Ippoliti, Marie Edison, Cameron Alexander, Meghana Kulkarni, Eleanor Zimmermann, Arjun Nathan, Luca Orecchia, Ravi Banthia, Pietro Piazza, David Mak, Nikolaos Pyrgidis, Prabhat Narayan, Pablo Abad Lopez, Faisal Nawaz, Trung-Thanh Tran, Francesco Claps, Donnacha Hogan, Juan Gomez Rivas, Santiago Alonso, Ijeoma Chibuzo, Beatriz Gutierrez Hidalgo, Jessica Whitburn, Jeremy Teoh, Gautier Marcq, Alexandra Szostek, Jasper Bondad, Petros Sountoulides, Tom Kelsey, Veeru Kasivisvanathan, IDENTIFY Study Group. 2024. *European Urology Focus*

Improved survival of children and adolescents with classical Hodgkin lymphoma treated on a harmonised protocol in South Africa

Jennifer Geel, Anel Zyl, Jan du Plessis, Marc Hendricks, Yasmin Goga, Amy Carr, Beverley Neethling, Artsiom Hramyka, Fareed Omar, Rema Mathew, Lizette Louw, Thanushree Naidoo, Thandeka Ngcana, Tanya Schickerling, Vutshilo Netshituni, Elelwani Madzhia, Liezl du Plessis, Tom Kelsey, Daynia E. Ballot, Monika L. Metzger. 2023. *Paediatric Blood and Cancer*

Optimizing oocyte yield: unveiling the ideal follicle sizes on the day of trigger using interpretable machine learning

Simon Hanassab, Ali Abbata, Tom W Kelsey, Arthur CY Yeung, Artsiom Hramyka, Tulin Alhamwi, Rehan Salim, Alexander N Comninou, Geoffrey H Trew, Scott M Nelson, Thomas Heinis, Waljit S Dhillon. 2023. *Fertility & Sterility*, 120(4): e34-e35

Changes in affordable blood tests predict interim pet response in paediatric classical Hodgkin lymphoma

Jennifer A. Geel, Artsiom Hramyka, Jan du Plessis, Yasmin Goga, Anel Van Zyl, Thandeka V.Z. Ngcana, Marc G. Hendricks, Elelwani Madzhia, Vutshilo Netshituni, Thanushree Naidoo, Liezl Du Plessis, Rema Mathew, Lizette Louw, Amy Carr, Beverley Neethling, Tanya Schickerling, Fareed Omar, Katherine Eyal, Tom Kelsey, Daynia E. Ballot, Monika L. Metzger. 2023. *Paediatric Blood and Cancer*

A national protocol for Classical Hodgkin Lymphoma results in improved survival rates of children and adolescents in South Africa

Jennifer Geel, Anel Van Zyl, Jan Du Plessis, Marc Hendricks, Yasmin Goga, Amy Carr, Beverley Neethling, Artsiom Hramyka, Tom Kelsey, Fareed Omar, Rema Mathew, Lizette Louw, Thanushree Naidoo, Thandeka Ngcana, Tanya Schickerling, Vutshilo Netshituni, Elelwani Madzhia, Monika Metzger, Daynia Ballot. 2023. *Paediatric Blood and Cancer*

Repurposing "old" blood tests to replace costly interim analysis/imaging of Hodgkin lymphoma in low and middle-income settings

Jennifer Geel, Tom Kelsey, Artsiom Hramyka, Khumo Myezo, Marc Hendricks, Thandeka Ngcana, Fareed Omar, Yasmin Goga, Beverley Neethling, Vutshilo Netshituni, Anel van Zyl, Elelwani Madzhia, Rema Mathew, Daynia Ballot, Monika Metzger. 2021. *Paediatric Blood and Cancer*, Volume 68, Issue S5: S374

Endocrine requirements for oocyte maturation following hCG, GnRH agonist, and kisspeptin during IVF treatment

Ali Abbata, Tia Hunjan, Vu NA Ho, Sophie A Clarke, Alexander N Comninou, Chioma Izzi-Engbeaya, Tuong M Ho, Geoffrey H Trew, Artsiom Hramyka, Tom Kelsey, Rehan Salim, Peter Humaidan, Lan N Vuong, Waljit S Dhillon. 2020. *Frontiers in endocrinology*, Volume 11, Article 764

Anti-müllerian hormone (AMH) in the diagnosis of menstrual disturbance due to polycystic ovarian syndrome

Ali Abbata, Pei Chia Eng, Maria Phylactou, Sophie A Clarke, Tia Hunjan, Rachel Roberts, Sunitha Vimalasvaran, George Christopoulos, Rumana Islam, Kate Purugganan, Alexander N Comninou, Geoffrey H Trew, Rehan Salim, Artsiom Hramyka, Lisa Owens, Tom Kelsey, Waljit S Dhillon. 2019. *Frontiers in endocrinology*, Volume 10, Article 656

IN PREPARATION

Introducing the Transformer Posterior Estimator: Amortised Bayesian Calibration of Cancer Microsimulation Models

Hramyka, A., et al. *In preparation; target journal: Medical Decision Making.*

Amortised Bayesian Calibration of Cancer Microsimulation Models on Real Screening-Trial Data (ERSPC and UKC-TOCS)

Hramyka, A., et al. *In preparation.*

Deep Learning-Based Prediction of Follicle Size Distributions During Ovarian Stimulation Using a Transformer Architecture: A Retrospective Multicentre Study

Hramyka, A., Hanassab, S., Nelson, S. M., Kelsey, T. W. *In preparation.*

Collaborations & Contributions

University of Cambridge & CRUK International Alliance for Cancer Early Detection (ACED)

Based at the Centre for Cancer Genetic Epidemiology, University of Cambridge, working with the group led by Prof. Nora Pashayan. In May 2026 I transitioned into a Principal Investigator role, holding a £190k CRUK ACED Pathway Award (co-mentors: Prof. Nora Pashayan and Prof. Sue Astley) to develop dynamic AI-based models for 5-year breast cancer risk prediction from longitudinal mammography, in collaboration with Prof. Fiona Gilbert's group at the Department of Radiology. Earlier work as a Research Associate in Simulation Modelling contributed to the CRUK ACED-funded ABIDE Feasibility Study (Addressing the Base Error Impeding the Development of Biomarkers for Early Detection) – an international collaboration including Cambridge, UCL, Stanford, Manchester, and Oregon. Key activities include:

- Leading the development of sequence-aware deep learning models (modern vision architectures and transformers) for Dynamic Risk-Stratified Breast Screening, stratifying women into high/medium/low-risk groups to reduce over-screening of low-risk individuals while improving detection of interval cancers in higher-risk groups.
- Developing and calibrating multistate models to simulate the natural history of malignant cancers (e.g., breast, prostate, lung) using national registry and ONS data.
- Conducting simulation studies to evaluate the effectiveness and optimise various cancer screening strategies, informing potential healthcare policy.
- Served as a panel member for the interview and selection process of a new research candidate within the department.

Department of Radiology, University of Cambridge

I collaborate with the group led by Prof. Fiona Gilbert at the Department of Radiology, working directly with practising radiologists to ground my AI methods in clinical reality. The partnership supports my CRUK ACED Pathway Award on dynamic, longitudinal mammography-based 5-year breast cancer risk prediction. My contributions include:

- Co-designing model evaluation criteria with radiologists to ensure that predictions are clinically meaningful and translate to real screening workflows.
- Accessing and analysing longitudinal mammography datasets curated by the group to develop and validate sequence-aware deep learning architectures.
- Translating findings on convergent radiological patterns into formats that can support clinical decision-making and inform future risk-stratified screening trials.

Wolfson Fertility Center & Imperial College London

I am actively engaged in collaborative research with the group headed by Prof. Dhillo of Imperial College London, focusing on fertility research and assisted conception methods.. My contribution consists of providing Computer Science expertise to the group which includes:

- Conducting comprehensive analyses of assisted conception data, emphasizing the efficacy and outcomes of various fertility treatments
- Developing and implementing a novel method for simulating follicle growth, a groundbreaking approach that enhances our understanding of ovarian function and assists in optimizing fertility treatments

Work Experience

Principal Investigator, CRUK ACED Pathway Award

UNIVERSITY OF CAMBRIDGE

Cambridge, UK

2026 – Present

- Two-year £190k fellowship developing AI approaches for longitudinal mammography-based 5-year breast cancer risk prediction. Co-mentors: Prof. Nora Pashayan, Prof. Sue Astley. Collaborator: Prof. Fiona Gilbert's group (Department of Radiology).

Research Associate, Department of Public Health and Primary Care

UNIVERSITY OF CAMBRIDGE (POSTDOCTORAL AFFILIATE OF TRINITY COLLEGE)

Cambridge, UK

2024 – Present

- Simulation modelling for cancer early detection within the CRUK International Alliance for Cancer Early Detection (ACED), including the ABIDE Feasibility Study.

Teaching Assistant

UNIVERSITY OF ST ANDREWS

St Andrews, UK

Sept 2021 – Sept 2024

- Co-designed and co-delivered a postgraduate-level course on "End-to-end Machine Learning" (CS5959), actively shaping the curriculum and delivering engaging lectures alongside a professor.
- Supervised a total of over 60 students on modules "Object-Oriented Programming" and "Programming with Data".
- Enhanced student learning during practical lab sessions by serving as a demonstrator, offering hands-on assistance and clarifying theoretical concepts.
- Demonstrated meticulous attention to detail and strong assessment skills through extensive coursework and exam marking for the "Signal Processing" course.

Technical lead

FARADAY BATTERY

Remote, Birmingham

July 2022 – March 2023

- Led the technical direction of Faraday Battery, a high-growth startup, wearing multiple hats and tackling diverse challenges.
- Built and scaled a robust AWS infrastructure from scratch, single-handedly managing billing and ensuring cost-effectiveness.
- Partnered closely with the scientific team to bridge the gap between cutting-edge physics algorithms and production-ready software. Successfully integrated their C code into our system, enabling efficient data processing and analysis to drive research forward.
- Led the recruitment process for 30+ Software Engineer and Data Scientist positions, carefully curating a high-performing team tailored to the startup's unique needs.

ML Engineer

ING GROUP

Amsterdam, Netherlands

May 2020 – June 2021

- Led a ground-breaking PoC on unstructured data extraction, successfully unlocking valuable insights from previously untapped documents.
- Organized and Led workshop/competition on the topic "Deploying ML models for identification of Fake News on Google Cloud Platform"
- Collaboratively developed a credit monitoring application alongside business analysts, applying data science skills to solve a critical business challenge.

Software Engineer

ING GROUP

Amsterdam, Netherlands

Sep 2019 – May 2020

- Delivered a high-performance Java reporting application in production, processing tens of terabytes of financial markets data monthly. This solution streamlined monthly reporting and significantly improved data accessibility for critical bank operations.
- Led and executed a successful Proof of Concept (PoC) leveraging Spark cluster technology to analyze large-scale financial data. The PoC's positive outcomes – including improved analytical efficiency and insights – drove a department-wide adoption of the Spark framework.

Research Intern*St Andrews, UK***UNIVERSITY OF ST ANDREWS***Aug 2018 – Sep 2019*

- Spearheaded data analysis efforts, applying advanced statistical models to uncover subtle patterns in complex medical datasets
- Fostered close collaboration with the assisted conception clinical team, translating research findings into actionable insights and continually refining my analysis based on their clinical expertise.
- Pioneered a novel method for diagnosing an important medical condition in patients undergoing assisted conception, based on hormone level analysis in R and Python. This breakthrough, published in two peer-reviewed journals, has the potential to significantly improve early diagnosis and patient outcomes.

Full Stack Developer Intern*St Andrews, UK***SCHOOL OF MEDICINE, UNIVERSITY OF ST ANDREWS***Aug 2018 – Sep 2019*

- Designed and developed user-friendly interfaces for both iOS and Android platforms.
- Presentations to and feedback from the health psychology clinical team
- Collaboration with staff from Edinburgh Cancer Centre, University of Stirling, University of St Andrews
- Formulation of GDPR-level data governance schemas for submission to Ethics, Public Benefit and Privacy boards

Awards, Fellowships, & Grants

2026	CRUK ACED Pathway Award – Sole Principal Investigator. “A Dynamic AI Approach for 5-Year Breast Cancer Risk Prediction by Modelling Convergent Radiological Patterns in Longitudinal Mammography.” , Cancer Research UK – International Alliance for Cancer Early Detection	£190,000 / 2 yrs
2026	HPC Compute Allocation – ~20,000 A100 GPU-hours on Cambridge CSD3 , University of Cambridge Research Computing Service	
2023	Global Health Network Award (Top 3 of 1,600) , The International Society of Paediatric Oncology, Ottawa, Canada	
2021	St Leonard’s Postgraduate Scholarship , University of St Andrews	

Presentations & Talks

30 September 2025. *Deep Learning-Based Follicle Growth Prediction using a Transformer Architecture*. Cambridge AI in Medicine Seminar Series (hosted by the CRUK Cambridge Centre and the Department of Radiology, Addenbrooke’s), Jeffrey Cheah Biomedical Centre, University of Cambridge (hybrid)

Summer 2024 *Modelling individual follicle growth rates during ovarian stimulation in medically assisted reproduction cycles to enable prediction of final follicle profiles* European Society of Human Reproduction and Embryology, 40th Annual Meeting, Amsterdam

Autumn 2023. *Workshop on Research Design for undergraduates*. Workshop on Experimental Design at the University of St Andrews

Autumn 2023. *Presentation at AI and Machine Learning in Healthcare Summer School at the Cambridge Centre for AI in Medicine*. Cambridge, University of Cambridge

Spring 2023. *Follicle growth trajectories*. Bonn Health Data Science Symposium on Prediction of follicle growth in IVF cycles

Spring 2023. *Poster presentation*. St Andrews, University of St Andrews

Autumn 2022. *Follicle growth trajectories*. Digital Health Science Interschool Seminar at St Andrews

CONTRIBUTION TO PRESENTATIONS

Summer 2024. *Explainable artificial intelligence (XAI) to determine the follicle sizes on trigger day that maximize mature oocyte yield*. European Society of Human Reproduction and Embryology, 40th Annual Meeting, Amsterdam

Autumn 2023. *Interim analysis changes in Erythrocyte Sedimentation rate, Albumin and Lactate Dehydrogenase to predict PET response in Hodgkin lymphoma*. Abstract is a 2023 Winner “Global Health Network” out of 1600 abstracts submitted. Society of Paediatric Oncology, Ottawa, Canada

Autumn 2023. *Improved survival of children and adolescents with classical Hodgkin lymphoma treated on a harmonised protocol in South Africa*. Society of Paediatric Oncology, Ottawa, Canada

Teaching Experience

- 2026 **CS5014: Machine Learning (Sequence Processing: RNNs, Attention, Transformers)**, Guest Lecturer, University of St Andrews
- 2024 **CS5959: End-to-End Machine Learning**, Lecturer
- 2024 **CS1003: Programming with Data**, Tutor
- 2024 **1st and 2nd year Computer Science**, Lab Demonstrator
- 2024 **IE International Institute Computer Science Programme**, Tutor
- 2023 **CS5959: End-to-End Machine Learning**, Lecturer
- 2023 **CS4302: Signal Processing: Sound, Image, Video**, Marker
- 2023 **IE International Institute Computer Science Programme**, Tutor
- 2023 **SAEC: Summer Academic Experience Courses**, Teaching Assistant
- 2023 **CS1002: Object-Oriented Programming**, Tutor
- 2023 **CS1002: Object-Oriented Programming**, Lab Demonstrator
- 2023 **IE Institute Essay Marking and Tutoring**, Teaching Assistant
- 2023 **CS1003: Programming with Data**, Tutor
- 2023 **CS1003: Programming with Data**, Lab Demonstrator
- 2022 **ID5059: Knowledge Discovery and Datamining**, Teaching Assistant
- 2022 **CS1003: Programming with Data**, Tutor
- 2022 **CS1003: Programming with Data**, Lab Demonstrator
- 2021 **CS4203: Computer Security**, Marker
- 2021 **CS1002: Object-Oriented Programming**, Lab Demonstrator
- 2021 **CS1002: Object-Oriented Programming**, Tutor

Outreach & Professional Development

SERVICE AND OUTREACH

- 2024 – **CRUK ABIDE Feasibility Study (International Alliance for Cancer Early Detection)**, Study Management Board Member
- Present **School of Computer Science, University of St Andrews**, Postgraduate Research Students Representative
- 2023

DEVELOPMENT

AI and Machine Learning in Healthcare Summer School at the Cambridge Centre for AI in Medicine 11 – 15 September 2023

PEER REVIEW

Frontiers in Artificial Intelligence
 Journal of Medical Imaging
 Journal of Electronic Imaging

PROFESSIONAL MEMBERSHIPS

SIOP(International Society of Paediatric Oncology) Member
 European Society of Human Reproduction and Embryology