Razvan Valentin Marinescu

Education

2014 - 2018 | **4-Year CDT PhD in Medical Imaging, University College London**
PhD project: "Disease Progression Modelling and Evaluation in Alzheimer's Disease and Posterior Cortical Atrophy"
Supervisors: Prof. Daniel Alexander, Dr. Sebastian Crutch, Dr. Neil Oxtoby
I developed statistical and computational models of neurodegenerative disease progression. Applied them to different types of dementia such as typical Alzheimer's disease and Posterior Cortical Atrophy and in order to perform probabilistic disease staging and forecast the future evolution of subjects. I also organised the international TADPOLE Competition, which aims to identify algorithms and features that best predict the evolution of subjects at-risk of Alzheimer's disease.

Experience with: Bayesian Statistics, Machine Learning, Neuroimaging, Disease Progression Modelling.

2010 - 2014 | **4-Year MEng in Computer Science, Imperial College London**
First Class Honours (top 10% of class in final year)
Master thesis: "On a new metric to compare internal structures in biological networks"
Supervisor: Dr. Natasa Przulj
I developed a novel graph signature that was capturing the network structure around a particular node. I applied the signature to networks representing world-trade, protein-protein interactions and matabolic pathways and showed that it correlates with different network properties, such as oil price (trade network), key metabolic pathways (metabolic network) and key protein functions (protein network).

Subjects studied include: Machine Learning, Statistics, Bioinformatics, Computational Neuroscience, Programming, Simulations & Modelling, Complex Systems, Operating Systems.

Work Experience

Jan 2016 - Apr 2018 | **Teaching Assistant in Computational Modelling, UCL**
Taught computational modelling, bayesian statistics and numerical optimisation to Master students. Marked the students' coursework.

Sep 2014 - Aug 2018 | **Student Residence Advisor, University College London**
Provided pastoral support to students and emergency support.

Oct 2012 - Dec 2013 | **Teaching Assistant in Programming, Imperial College London**
Taught Haskell, Java and C to undergraduate students. Weekly marking of students' coursework.

Mar - Sep 2013 | **Industrial Placement at J.P. Morgan Chase & Co, Emerging Markets**
Assisted the retirement of a legacy system that was processing end-of-day market risk..

Jul - Sep 2012 | **Summer Internship at Goldman Sachs, Equities Technology**
Built programmes that automatically re-factored the Java source-code of a trading system. Learned about financial instruments and live market data..

Awards

2017 | Runner up (jointly) for the **Francois Erbsmann Prize** at the IPMI conference.
2015-17 | Travel and registration fellowships for several conferences: IPMI, AAIC and Human Brain Project.
2013 | DAAD Scholarship for doing a German Language course in Aachen, Germany over the summer.
2011 | Prize for the best undergraduate project in Artificial Intelligence, Imperial College London
2010 | Sponsored visit to Brussels, at the **NATO Headquarters**, for the achievements in international projects and Olympiads.
2009 | Grand Prize at the International Space Settlement Design Competition offered by **NASA Johnsons Space Center**.
2008 | Diploma of Excellency awarded by the **Government of Romania** for "impressive problem-solving skills".
2007 | Bronze Medal ar the 6th International Computer Project Competition "Informatix".
Silver Medal at the *National Mathematics Olympiad* in Romania.

First author publications

- A Vertex Clustering Model for Disease Progression: Application to Cortical Thickness Images, **R. V. Marinescu**, A. Eshaghi, M. Lorenzi, A. L. Young, N. P. Oxtoby, S. Garbarino, T. J. Shakespeare, S. J. Crutch and D. C. Alexander, IPMI, 2017
- TADPOLE Challenge: Prediction of Longitudinal Evolution in Alzheimer's Disease, **R. V. Marinescu**, N. P. Oxtoby, A. L. Young, E. E. Bron, A. W. Toga, M. W. Weiner, F. Barkhof, N. C. Fox, S. Klein, D. C. Alexander and the EuroPOND Consortium, arXiv, 2018
- A data-driven comparison of the progression of brain atrophy in Posterior Cortical Atrophy and Alzheimer's disease, **R. V. Marinescu**, A. L. Young, Neil P. Oxtoby, N. C. Firth, M. Lorenzi, A. Eshaghi, V. Wottschel, M. J. Cardoso, M. Modat, K. X. X. Yong, S. Primativo, N. C. Fox, M. Lehmann, T. J. Shakespeare, S. J. Crutch, D. C. Alexander, AAIC poster, 2016.
- Analysis of the heterogeneity of Posterior Cortical Atrophy: Data-driven Model Predicts Distinct Atrophy Patterns for three different Cognitive Subgroups, **R. V. Marinescu**, S. Primativo, A. L. Young, N. P. Oxtoby, N. C. Firth, A. Eshaghi, S. Garbarino, J. M. Cardoso, K. Yong, N. C. Fox, M. Lehmann, T. J. Shakespeare, S. J. Crutch, D. C. Alexander, AAIC poster, 2017

Joint publications

- Multiple orderings of events in disease progression, A.L. Young, N . P. Oxtoby, J. Huang, **R. V. Marinescu**, P. Daga, D. M. Cash, N. C. Fox, S. Ourselin, J. M. Schott, D. C. Alexander, Alzheimers Disease Neuroimaging Initiative, IPMI, 2015
- Uncovering the heterogeneity and temporal complexity of neurodegenerative diseases with Subtype and Stage Inference, A.L. Young, **R. V. Marinescu**, N. P. Oxtoby, M. Bocchetta, K. Yong, N. Firth, D. Cash, et al, Nature Communications, 2018
- Progression of regional grey matter atrophy in multiple sclerosis, A. Eshaghi, **R. V. Marinescu**, A. L. Young, N. C. Firth, D. Prados, M. Jorge Cardoso, C. Tur, F. De Angelis et al., Brain, 2018
- An image-based model of brain volume biomarker changes in Huntington's disease, P. A. Wijeratne, A. L. Young, N. P. Oxtoby, **R. V. Marinescu**, N. C. Firth, E. B. Johnson, A. Mohan, C. Sampaio, R. I Scahill, S. J. Tabrizi, D. C. Alexander, Annals of clinical and translational neurology, 2018