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Education

- 2010 - 2016 **Doctor of Philosophy (PhD) in Mathematics** [University of Exeter, UK](#)
Title of the Thesis: "An investigation into dynamic and functional properties of prokaryotic signalling networks".
Supervisor: Prof. Orkun Soyer & Ozgur Akman, University of Warwick and University of Exeter.
- 2008 - 2009 **Master of Science, Drug Discovery and Translational Biology** [University of Edinburgh, UK](#)
Graduated with UK 2:1
Dissertation Thesis: "Cloning, Expression and characterization of known pathogenic variants of SLC2A9 (GLUT9)".
Supervisor: Prof. Alan Wright, MRC Human Genetics Unit, Edinburgh.
- 2004 - 2008 **Bachelor of Engineering (Biotechnology)** [Visvesvaraya Technological University, India](#)
Title of the Thesis: "Determining the structure of atovaquone using single crystal X-ray diffraction".
This work was carried through an internship at Solid State and Structural Chemistry Unit, Indian Institute of Science.

Research Experience

- 11/16 - now **Computational Biologist (Postdoc)** [The Babraham Institute, Cambridge, UK](#)
- I am currently a **curator** for BioModels and SBO (Systems Biology Ontology).
 - As part of this role, I am **actively** engaged with systems, synthetic and computational biology communities.
 - In addition to curation, I am actively involved in **developing** new standards for representing computational models in biology.
- 12/10 - 08/16 **Doctor of Philosophy (Ph.D) in Mathematics** [University of Exeter, UK](#)
- I **identified** previously unknown *dynamic and computational* properties of prokaryotic signalling network architectures (tunability, multistability and boolean logic).
 - I was the **lead author** of **two** and a **second author** of **one** peer-reviewed journal papers.
- 05/09 - 08/09 **M.Sc dissertation project** [MRC Human Genetics Unit, Edinburgh, UK](#)
- I was **responsible** for cloning, expressing and characterising GLUT9 gene mutations that cause hypouricaemia.
- 01/08 - 05/08 **B.E. dissertation project** [Solid State Structural Chemistry Unit, IISc, India](#)
- I was **responsible** for growing crystals of atovaquone, an anti-malarial drug, and use X ray crystallography to determine its 3D structure.

Startup & Work Experience

08/15 - 02/16 **Cogito Consulting and Technology**

Product Head, CogitoHub

- I was **responsible** for managing the product development and delivering the vision of the company in building end to end technology solutions for schools across India.

04/15 - 07/15 **LabSnaps**

Project Manager and Content Head- Labiotech Tour India

- I was **responsible** for recruiting a local execution team in Bangalore, identify partners and sponsors for Labiotechtour's business documentary on the Indian Biotech Industry.

03/14 - 4/15 **Nous (<http://nous.li/>)**

Founder

- Nous was a skill based matchmaking platform for universities to connect users with questions to solvers with answers. The vision for Nous was to map skills and learning in universities to gain a more detailed insight into the learning process at universities.

04/10 - 6/10 **GlaxoSmithkline**

BRIO Intern

- I examined RT PCR data to develop a predictive model for hepatotoxicity in rats during preclinical studies.

Publications

Kothamachu, Varun B., Elisenda Feliu, Luca Cardelli, and Orkun S. Soyer **Unlimited Multistability and Boolean Logic in Microbial Signalling**. *Journal of The Royal Society Interface* 12, no. 108 (July 6, 2015): 20150234. doi:10.1098/rsif.2015.0234.

Amin, Munia, Varun B. Kothamachu, Elisenda Feliu, Birgit E. Scharf, Steven L. Porter, and Orkun S. Soyer **Phosphate Sink Containing Two-Component Signaling Systems as Tunable Threshold Devices**. *PLoS Comput Biol* 10, no. 10 (October 30, 2014): e1003890. doi:10.1371/journal.pcbi.1003890.

Kothamachu, Varun B., Elisenda Feliu, Carsten Wiuf, Luca Cardelli, and Orkun S. Soyer **Phosphorelays Provide Tunable Signal Processing Capabilities for the Cell**. *PLoS Comput Biol* 9, no. 11 (November 7, 2013): e1003322. doi:10.1371/journal.pcbi.1003322.

Talks and Poster Presentation

Conducted a hands on training session titled "**Annotations beyond Chemical Kinetics**" for the In Silico Systems Biology Course, 9th-14th July, EMBL-EBI.

Conducted a hands on training session titled "**Building and Simulating Models using COPASI**" for the In Silico Systems Biology Course, 9th-14th July, EMBL-EBI.

Contributed talk titled "**Sigmoidality, multistability and Boolean Logic in Two component-signalling architectures**". *BioDynamics Workshop: Emergent Dynamics of Complex Biological Networks*, 23rd-24th June 2014, University of Exeter

Programming Skills / Tools

Matlab
R
Perl
Maple

BLAST2GO
PRISM
SPIM
COPASI
XPPAUT
Oscill8

Html/CSS
Amazon AWS

OS Expertise

MacOS
Linux
Windows

Invited talk titled "Exploring Topological Properties of four-layered Phosphorelays". BioComplexity Wednesday Meetings and Special Lectures, Neils Bohr Institute, Copenhagen. 13th March, 2013.

Poster Presentation titled "Response Dynamics of Bacterial two component signalling systems". Conference on Modelling in Microbiology at ESI, Edinburgh. 4th-7th July, 2011.

Grants & Awards

07/17 **1000 GBP Biomaker Challenge Grant - PEARL: Puzzling BactEriAI Pet with Reinforcement Learning.** [Synthetic Biology Strategic Research Initiative, University of Cambridge](#)

This award has been granted to test the notion of cognition, memory and learning in a colony of bacterial cells. To do this, we will be developing a microfluidics based maze puzzle, and test a bacterial colony's ability to navigate the maze and solve the puzzle.

04/14 **1500 GBP Innovation Center Grant - Nous (<http://nous.li/>)** [Innovation Center, University of Exeter](#)

This award was to support my proposal for building a skill based matchmaking platform for university students to find advice on questions, new collaborators for projects and a discussion forum that helps those seeking questions to solvers with the right skills and answers.

04/12 **500 GBP grant award** [University of Exeter](#)

As part of the digital literacy programme (CASCADE), I raised funds to setup a resource containing micro-controller boards (Arduino) and an array of sensors. This hardware was used by other research graduates to build devices for different applications. One of the users of this resource is currently building a business that designs and sells smart syringe pumps for use in laboratories.

12/10 - 12/14 **Dorothy Hodgkin Postgraduate Award** [University of Exeter](#)

This award was jointly sponsored by EPSRC and Microsoft Research and covered my PhD fees and stipend.

Other Interests

- Member of the core team behind the Cambridge Biomakespace. <http://biomake.space>
- Volunteer at "TedxExeter (2013 & 14)"
- Opening bowler for The Erratics Cricket Club, Exeter, UK (2011-2014).