



Add-on Fellows for Interdisciplinary Life Science Third Cohort

Apoorva Baluapuri

Alumnus Doctoral candidate (Biochemistry) at the Biocenter of the Julius-Maximilian's-University of Würzburg



Apoorva Baluapuri was working on quantitative aspects of how information is read from genes before it is used to make the building blocks of life. This process is misregulated in cancer. He was awarded the DFG Excellence Initiative Fellowship and the Biocentre Science Prize for excellent research at the University of Würzburg. Previously, he completed his studies in biotechnology and clinical neuroscience and worked as a software service engineer in India. As a postdoc, he now also works with high-resolution imaging techniques. He will soon move to Harvard Medical School in Boston, USA.



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Stephan Baumgärtner

Alumnus Postdoc (Physics) at the Center of Systems biology and Max-Planck-Institute (MPI) for the Physics of Complex Systems in Dresden

Stephan Baumgärtner continued his research from his doctoral studies and wants to understand how heterogeneity arises and is controlled in biological systems. He wrote his dissertation at the University of Mainz and previously studied physics at the TU Dresden and the Max Planck Institute for Cell Biology and Genetics. The Add-on Fellowship helped him utilizing mathematical modeling to test hypotheses and then test the models using synthetic biology. The fellowship also allowed him to attend summer schools and conference. He is currently a postdoctoral fellow at the Max Planck Research Network in Synthetic Biology.



Katherine Beckham

Alumna Postdoc (Structure Biology and Microbiology) at the European Molecular Biology Laboratory (EMBL) in Hamburg



Kate completed her undergraduate studies in Molecular Biology at the University of Saint Andrews, Scotland. She joined the Wellcome Trust Program on the 'Molecular functions of Disease' at the University of Glasgow, Scotland, where she completed her MRes and Ph.D. Kate was awarded an EMBL Interdisciplinary Postdoctoral (EIPOD) fellowship to investigate the structure and assembly of the Type VII Secretion System, is a key virulence factor for mycobacterial pathogens. She was awarded the Helmholtz Center for Infection Research award. Obtaining the Add-on fellowship from the JHS allowed Kate to pursue interdisciplinary approaches.



David Fischer

Alumnus Doctoral candidate (Bioinformatics) at the Helmholtz-Center in Munich

David Fischer was working on his doctoral project in Computational Biology/Machine Learning at the group of Prof. Fabian Theis, specifically on algorithm development for single-cell RNA-seq data. David received a B.Sc. Biochemistry from the University of Cambridge and a M.Sc. in Computational Biology and Bioinformatics from ETH Zurich. During his Masters, he specialized in statistical modelling of Biological Systems and Machine Learning. He used the Add-on Fellowship to facilitate collaborations and to conduct a single-cell RNA-seq experiments in conjunction with an experimental collaborator.

**Adrian Granada**

Alumnus Postdoc (Biophysics) at the Humboldt-University Berlin



Adrian Granada is a physicist-turned-biologist. He studied physics at the University of Buenos Aires, Argentina. He then decided to pursue his doctorate in biophysics at the Institute for Theoretical Biology in Berlin, where he used the theory of coupled oscillators to investigate features of the circadian system. For his postdoc, he joined the Systems Biology department from Harvard Medical School to gain training in experimental single-cell biology. At Harvard, Adrian gained hands-on expertise on cell line engineering and high-resolution live microscopy. He started his group at Charité Berlin with the goal to advance the understanding of the single-cell dynamics of cellular processes.

**Michael Heymann**

Alumnus Postdoc (Biophysics) at the Max-Planck-Institute (MPI) for Biochemistry in Martinsried next to Munich

Michael Heymann worked with high-resolution 3D printing methods to develop optimal mixing jets for time-resolved observation of biological reactions. Previously, he studied biology in Berlin, followed by a doctorate in structural biology and biophysics in Boston. In his doctoral thesis, he explored dynamic, self-assembling, biological processes using microfluidic methods. With the Add-on Fellowship, he was exploring medical applications for submicrometer 3D printing processes and researching how complex biological systems can self-organize from the nanometer to the mesoscale. Michael became an assistant professor at the Institute of Biomaterials and Biomolecular Systems in Stuttgart.



Sayuri Hortsch

Alumna Doctoral candidate (Systems biotechnology) at the Technical University of Munich

Sayuri Hortsch was a doctoral candidate at the Department of Systems Biotechnology under the supervision of Prof. Andreas Kremling. She was majoring in stochasticity in gene expression and the resulting cellular heterogeneity. Previously, she studied molecular biotechnology and (bio)mathematics at the TU Munich. She was involved as a student assistant and as a tutor. She completed her master's thesis at Roche Diagnostics in Penzberg. The Add-on Fellowship was the basis to learn experimental single cell technologies to generate data for her models and to exchange with international research groups.

Florian Huber

Alumnus Postdoc (Bioinformatik) at the European Molecular Biology Laboratory (EMBL) in Heidelberg

Florian Huber was working on the question of how to predict phenotypes based on high content screening. He also models data from high throughput experiments to predict drug mechanisms and drug interactions. He completed his dissertation at the University of Heidelberg in RNA systems biology in baker's yeast. Previously, he studied Molecular Biology at the University of Vienna and Molecular Medicine at Imperial College London. He was using the Add-on Fellowship to understand and apply machine learning methods to systems biology.



Cosimo Jann

Alumnus Doctoral candidate (Molecular biology) at the European Molecular Biology Laboratory (EMBL) in Heidelberg

Cosimo Jan performed his doctorate in cooperation with the ETH Zurich, developing new genetic tools and revealing how signaling pathways regulate stress adaptation. Beforehand, he studied Biotechnology at University of Kaiserslautern. At UC Berkeley, he specialized in nano- and bioengineering. After M.Sc. completion, he trained at the Wellcome Trust Sanger Institute and BASF Corp., NY. The Add-On Fellowship enabled fruitful international collaborations and allowed him to acquire experience in confocal microscopy, statistics, and large data analysis. As a postdoc at the Institute of Molecular Biology and the Mainz University, he works on developing technologies for genetic code expansion.

Andrej Kamenac

Alumnus Doctoral candidate (Biophysics) at the University of Augsburg

Andrej Kamenac was doing his doctoral thesis on the effects of the thermodynamic phase state of the membrane on enzyme activity and drug uptake. Previously, he studied physics and materials science at the University of Augsburg. During his studies, he worked as an exercise instructor for experimental physics and as a working student in the field of polymer chemistry and lightweight construction. The Add-on Fellowship supported him to gain deeper insights into various biochemical experimental techniques.



Andreas Kist

Alumnus Doctoral candidate (Neuroscience) at the Max-Planck-Institute (MPI) for Neurobiology in Martinsried next to Munich

Andreas Kist was using in vivo calcium imaging, aiming to understand the recording, processing, and output of signals from the cerebellum in zebrafish. Previously, he studied as B.Sc. and M.Sc. molecular medicine at the Friedrich-Alexander-University (FAU) in Erlangen. In addition to (patho-)physiology research, he worked in the department of a consortium focuses on medical technology, digitalization, and automation in Munich. He is a freelance web designer, programmer, and lecturer. With the Add-on Fellowship, he addressed the data processing of Purkinje cells, which he wants to model. Andreas became a Junior Professor for Artificial Intelligence at FAU.



Arghyadip Mukherjee

Alumnus Doctoral candidate (Biophysics) at the Max-Planck-Institute (MPI) for the Physics of Complex Systems in Dresden



Arghyadip Mukherjee, alias Argo, became a biophysicist due to his fascination for complex shapes. He uses theoretical concepts of active matter physics to identify underlying principles that govern the organization and dynamics of living tissues. For Argo, theoretical approaches represent not only a way to capture the true essence of biophysical phenomena, but also an instrument to gain novel quantitative insights. Previously, he studied physics at the Indian Institute of Science, India, with an emphasis on theoretical physics. After his doctorate at MPI-PKS, Dresden, he is starting his postdoctoral position at Collège de France, Paris.



Andreas Nold

Alumnus Postdoc (Neuroscience) at the Max-Planck-Institute (MPI) for Brain Research in Frankfurt



Andreas Nold works on microscopy and imaging of single molecules. He also develops models for biological processes, mainly in brain research and neuro-immune interaction. Before that, he studied Mechanical Engineering and Mathematics and Computer Science at the Technical University of Darmstadt. Subsequently, he did research as a research assistant at the Department of Fluid Dynamics and subsequently obtained his doctorate in the 'Complex Multiscale Systems' group at the Chemical Engineering Department at Imperial College London. After his doctorate, Andreas worked as a senior business consultant for an IT transformation project before taking up his current research topic in Neuroscience.



Laura Paulowski

Alumna Postdoc (Biophysics) at the Research Center Borstel – Leibniz Lung Center

Laura Paulowski's research topic is "Generation of asymmetric vesicles as a model for Gram-negative bacteria". Previously, she did her thesis at the Leibniz Lung Center within the Cluster of Excellence Inflammation@Interfaces where she investigated the effect of membrane active substances, so called host defense peptide, on model membranes i.e., lipid rafts. Previously, she studied chemistry at the Westfälische Wilhelms-Universität Münster and at the University of California, San Diego, USA (UCSD). Through the Add-on Fellowship, Laura had the opportunity to gain a deeper insight into high-resolution fluorescence microscopic analysis (STED-imaging and -FCS).



Lourdu Xavier Paulraj

Alumnus Doctoral candidate (Biophysics) at the Max-Planck Institute (MPI) for the Structure and Dynamics of Matter, CFEL-DESY and EuXFEL in Hamburg



Lourdu Xavier Paulraj works at the interface of DNA nanotechnology, crystallography and single-particle imaging. He carries out his research on single-particle diffractive imaging of 3D DNA-origami molecular scaffolds using XFEL pulses with the goal of developing DNA-origami-based holographic platforms for imaging small-proteins. He was a visiting scholar at New York University, Linac Coherent Light Source (LCLS), SLAC National Accelerator Laboratory and Stanford University. There he got trained on

DNA nanotechnology, X-ray imaging, and cryoEM. Also, he has done an internship at Harvard University on computational tools for de novo designer proteins funded by the Add-on Fellowship.



Max Schelski

Alumnus Doctoral candidate (Neurobiology) at the German Center für Neurodegenerative Diseases (DZNE) in Bonn



Max Schelski was working on axon development, using live-cell imaging and coding in Python. During his B.Sc. he worked on research projects in Synthetic Biology and on a project with human-derived neurons. He analysis the train-track network (microtubule array) in neuronal protrusions (neurites), which for a long time has been thought to be stationary but is in fact dynamic and constantly flows from neurites into the cell body. Max now plans to develop a quantitative, biophysical model

of these cytoskeletal dynamics using mathematical modelling and machine learning.



Adrian Schwarzer

Alumnus Postdoc (Human medicine) at the Hannover Medical School (MHH)

Adrian Schwarzer was a research associate and physician assistant at the Department of Hematology, Oncology and Stem Cell Transplantation and focused on aggressive T-cell leukemia. He completed his doctoral theses in medicine in molecular medicine with a focus on biochemistry at the MHH as well as at the Institute of Immunology at the TU Dresden. Previously, he studied human medicine at the TU Dresden with a stay abroad at Dartmouth Medical School, NH, USA. He was also a member of the "Junge Akademie" of the MHH. The Add-on Fellowship supported him in strengthening collaborations with Copenhagen and Vienna, conference visits, continuing education and in the acquisition of powerful technology.

Darius Schweinoch

Alumnus Doctoral candidate (System biology) at the University Hospital Greifswald

Darius Schweinoch explored the innate immune response in viral infections using mathematical modeling. Previously, Darius studied cell biology at the University of Osnabrück and bioinformatics at the University of Potsdam. During his master's degree, he worked as a research assistant in theoretical systems biology and conducted research on model-based methods for assay system evaluation. The Add-on Fellowship supported him in interdisciplinary collaboration and improves his methodological repertoire. As a modeling and simulation scientist, he joined a consulting company for drug development and pharmaceuticals.



**Joanne Trinh**

Alumna Postdoc (Genetics) at the University of Lübeck



Joanne Trinh received her B.Sc. and Ph.D. in medical genetics at the University of British Columbia. Following a scientific fellowship at the University of Antwerp, Belgium, Joanne returned to Canada to work on genetic modifiers in LRRK2 parkinsonism. She subsequently joined the Institute of Neurogenetics in Lübeck, where she has now obtained a faculty position. The Add-on Fellowship has spearheaded her career growth as an independent scientist and research group leader. She is head of the “Integrative Omics in Parkinson’s disease” research group, which investigates the role of nuclear and mitochondrial genome sequences and lifestyle and environment in parkinsonism using big-data approaches.

**Michael Witting**

Alumnus Postdoc (Chemistry) at the Helmholtz-Center in Munich



Michael Witting studied Applied Chemistry at the Georg-Simon-Ohm University of Applied Sciences with a functional direction into Biochemistry. He obtained his doctorate from TU Munich. His research interest is the development of novel tools for the analysis of the metabolome of the model organism *Caenorhabditis elegans* and novel data analytical tools for identification of unknown metabolites. The Add-On Fellowship enabled him to learn more about mathematical modeling and analysis of metabolic fluxes.

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