Personal Information

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Research experience

Oct, 2016 – present

Master Thesis, Technische Universität, Dresden, Germany

- **Research areas:** DNA origami design, synthesis and functionalization, gold nanoparticles, bioconjugation, biological samples, magnetic bead purification, immunogold labelling, electron microscopy (STEM).
- **Advisor:** Dr. Thorsten-Lars Schmidt (Center for Advancing Electronics Dresden)
- **Collaborators:** Dr. Marius Ader and Dr. Thomas Kurth (Center for Regenerative Therapies Dresden)

Aug – Oct, 2016

Annual biomolecular design competition 2016 (BIOMOD)

- **Project:** Nanorover (Magnetic bead based system for drug transportation and delivery)
- **Research areas:** Vesicle synthesis, encapsulation & peptide mediated bursting; DNA origami synthesis and purification; website design.

Dec, 2015 – Aug, 2016

Center for Advancing Electronics Dresden, Germany

- **Project:** Optimization of DNA origami based waveguides for plasmonics
- **Research areas:** DNA Origami, gold nanoparticles, DNA hybridization dynamics at different salt concentrations.

Jun – Aug, 2015

Center for Advancing Electronics Dresden, Germany

- **Project:** Design of tile-based triangulated DNA nano-structures
- **Research areas:** Synthetic DNA, DNA tile design, software development, C++/Python programming.

Aug, 2014 – Nov, 2014

Fraunhofer-Institut für Zelltherapie und Immunologie, Leipzig, Germany

- **Project:** Automation of DNA-bricks based nano-3D printed system
- **Research areas:** Synthetic DNA, DNA bricks design, software development, Java programming.

Education and training

Graduate studies
Oct, 2015 – present

Technische Universität Dresden, Germany
M Sc in Molecular Bioengineering
Current cumulative Performance Index: 1.9/4

Undergraduate studies
Jul, 2010 – Jun, 2014

Dhirubhai Ambani Institute of Information and Communication Technology, India
B Tech in Information and Communication Technology
Cumulative Performance Index: 7.6/10

Tools and techniques

Programming Languages	Java, C, C++, Python, HTML5, CSS3, MySQL, Javascript, LaTeX
Biotechnology Tools	NUPACK, Cadnano, vHelix (Autodesk Maya Plugin), FIJI

Wetlab Techniques

DNA Origami	Design, synthesis, functionalization and purification
Gold nanoparticles	Synthesis, functionalization, conjugation to DNA origami
Bioconjugation	Antibody purification and conjugation to oligonucleotide via crosslinker chemistry, immunogold labelling
Other	Electron microscopy (STEM), gel electrophoresis (SDS PAGE, agarose), vesicle (LUV) synthesis using extrusion, DLS

Experiences

Nov, 2016 – present

Student representative of scientific board for Biotechnology Center (BIOTEC) of TU Dresden, Germany

May – Jun, 2011

Teaching assistant to Dr. Shiv Viswanathan for Environmental Science Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, India

Achievements

Gold project award at BIOMOD competition 2016, San Francisco

Microsoft Research Travel Grant: DNA19, Arizona State University, USA

Top 0.1% in Computer Science in All India Secondary School Examination (AISSCE)

Presentations

Oct 2016

Nanorover: Annual biomolecular design competition (BIOMOD), San Francisco

Jun 2016

Seminar presentation: Introduction to BIOMOD 2016 and team I, Nanobot project idea. Courses: Cellular Machines (TU Dresden) and Molecular Nanotechnology (Universität Leipzig)

Apr 2014

3DNA: A Tool for DNA Sculpting: Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO14), Duke University

Sep 2013

DNA Pen: A Tool for Drawing on Molecular Canvas: 19^{th} International Conference on DNA Computing and Molecular Programming (DNA19), Arizona State University

References

Dr. Thorsten-Lars Schmidt
Group leader DNA Chemistry
CFAED, TU Dresden
thorsten-lars.schmidt@tu-dresden.de

Dr. David M Smith
Head of DNA Nanodevices unit
Fraunhofer IZI
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Dr. Manish K Gupta
Professor
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