Ankit Jain

Optofluidic Engineer · Electrical Engineer

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Education

ETH Zurich — *Zurich, Switzerland*

Dr. sc. Institute of chemical and bioengineering — *Jan, 2018 - (Tentative: Feb, 2022)*

- Working on **High throughput sorting of biological species in microfluidics** with **Prof. Andrew J. deMello**.
  - **Conceptualized and developed two microfluidic sorting platforms:** an absorbance-activated droplet sorting platform that produces **the highest throughput observed to date** and a novel deformability-based cell sorting platform. These **platforms ingeniously combine fluid mechanics with electrical and optical components to establish novel techniques for detection and sorting** in microfluidic devices.
  - **Developed novel applications** of high throughput genotype and phenotype screening and fluorescence-activated sorting in microfluidic droplets through **collaborations with biochemists and biologists.**

MSc in Micro- and Nanosystems - 5.55/6 GPA — *Sept, 2015 - Dec, 2017*

- Developed a Quake-valves-based microfluidic chip for on-demand digital barcoding on microfluidic droplets as part of my master's thesis.
- Implemented an image-based automated microfluidic platform for large scale screening of *C. elegans*.

IIIT Allahabad — *Allahabad, India*

Btech in Electronics and Communication Engineering - 9.35/10 GPA — *Aug, 2009 - Jul, 2013*

Work Experience

ETH Zurich, Institute of Chemical and Bioengineering — *Zurich, Switzerland*

Research Assistant — *Jan, 2018 - PRESENT*

- **Conceptualized, designed and tested novel microfluidic and optofluidic platforms** for biological assays.
- **Trained several students on droplet microfluidic techniques**: device fabrication using 3D printing and microfabrication, cell-phenotyping, microlfuidic sorting and gene-recovery from droplets.
- **Automated workflow** using LabVIEW, Python and MATLAB to **bring down experiment time from hours to minutes.**

Juniper Networks — *Bangalore, India*

Hardware Engineer — *Jan, 2013 - Aug, 2015*

- Conceptualized, designed, brought up, and tested **high-speed PCBs, owning the development process from concept to pre-production.**
- Designed and verified control logic of the FPGA for high-speed boards, and **collaborated with the PCB layout, Mechanical, Software, Testing and Manufacturing teams** to bring the product to completion.

Skills

Microfluidics	Droplets, Continuous-flow, Droplet sorting, Quake-Valves, On-chip electrodes, Impedance detection, Flow cytometry, Cell sorting
Optics	Fluorescence, Absorption and Photothermal detection, Spectroscopy, Laser-optics
Devices	CAD Design (Autocad, Solidworks), Photolithography, Mask Alignment, 3D Printing, PDMS, PMMA, Paper, Surface functionalization
Elec. Systems	System architecture, Board design, FPGA development, Microcontrollers, Firmware
Biology	Cell culture and preparation, Enzyme kinetics
Programming	MATLAB, LabVIEW, Python, COMSOL Multiphysics
Languages	English, German (B1), Hindi

Selected Publications

Estimating the Three Characteristic Lengths of Plate-like Particles in Suspension

P. Binel, **A. Jain**, A. Jaeggi, D. Biri, A. K. Rajagopalan, A. J. deMello, M. Mazzotti; *Small Methods (In press)*

Programmable Control of Multiscale Droplets using V-Valves

T. Xue*, **A. Jain*** (equal contribution), X. Cao, D. Hess, S. Stavrakis, A. J. deMello; *Advanced Material Technologies (In press)*