Ankit Jain

Microfluidic Engineer · Electrical Engineer

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Education

ETH Zurich — *Zurich, Switzerland*

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

- Working on **High throughput sorting of biological samples in microfluidics** with **Prof. Andrew deMello**.
  - **Conceptualized and developed 2 microfluidic sorting platforms** which produce **the highest throughput observed to date**: an absorbance-activated droplet sorting platform, and a deformability-based cell sorting platform. These **platforms ingeniously combine fluid mechanics with electrical and optical components to produce novel techniques for detection and sorting** in microfluidic devices. Manuscripts in preparation.
  - **Developed novel applications** of high throughput genotype and phenotype screening and fluorescence-activated sorting in microfluidic droplets through **collaborations with biochemists and biologists. Manuscript Submitted in ACS Catalysis.**

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 — *Prayagraj, 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/optofluidic platforms** for biological assays.
- **Trained several students on esoteric droplet microfluidic skills**: device fabrication using 3D printing and microfabrication, cell-phenotyping, cell 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.

Publications

Development of a Universal NADH Detection Assay for High Throughput Enzyme Evolution Using FADS

Gerassimos Kolaitis*, **Ankit Jain*** (equal contribution) et al. Submitted in ACS Catalysis. 10.26434/chemrxiv-2022-jvg5j

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

Pietro Binel, **Ankit Jain** et al. Submitted in 2021 AIChE Annual Meeting.

Skills

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