

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 droplet microfluidic techniques**: device fabrication using 3D printing and microfabrication, cell-phenotyping, 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. 2021 ALCHE 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