

Ankit Kumar

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EDUCATION

Indian Institute of Technology (IIT) Roorkee
Bachelor of Technology, Engineering Physics **2016 – 2020**

- Graduated with First Division (81.2%)

École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
Bachelors' Thesis, School of Life Sciences **May – Dec 2019**

RESEARCH & WORK EXPERIENCE

Research Intern **May – Dec 2019**
Global Health Institute, EPFL. Mentor: Prof. John McKinney

- Developed a 3D-bioprinted lung-on-chip platform to investigate cytokine signaling in respiratory infections.
- Investigated host-pathogen interaction dynamics of Mycobacterium abscessus (MABS) infection in macrophages using live time-lapse microscopy.
- Discovered the role of Smooth MABS morphotype in triggering the release of macrophage extracellular traps.

Undergrad Researcher **Dec 2016 – Present**
Physics Department, IIT Roorkee. Mentor: Prof. Soumitra Satapathi

- Founded Lab-on-Chip Systems group in the lab.
- Developed a 3D printed microfluidic on-chip cytotoxicity assay.
- Mentored 5+ undergraduate students for 3 different projects.

Undergrad Researcher **June 2018 – Present**
Biotechnology Department, IIT Roorkee. Mentor: Prof. Partha Roy

- Leading the development of a circulating tumor cell liquid biopsy platform using magnetophoresis and microfluidic flow-focusing for tunable capture efficiency.
- Initiated the development of a blood-brain-barrier model.

Co-Founder and CTO **Aug 2017 – Jan 2019**
LabX Scientific Pvt. Ltd., TIDES IIT Roorkee

- Co-founded the personalized nano-fabrication startup.
- Lead the development of a Smart Spin-Coater equipped with real-time film thickness control.
- Presented at more than 5 elevator pitches and startup pitch-presentations.

LEADERSHIP & TEACHING

Joint Secretary and Co-Convenor

May 2018 – Jul 2020

Tinkering Lab, IIT Roorkee

- Supervised IIT Roorkee's additive manufacturing facilities.
- Conducted 3D printing and advanced prototyping workshops for 200+ students.
- Supervised the development of lab's online equipment booking platform.

Mentor

2018 – 2019

Student Mentorship Program (SMP), IIT Roorkee

- Provided mentorship to 5 first-year undergraduate students in the Department of Physics during 20+ mentoring sessions.

PATENT APPLICATIONS & PRESENTATIONS

- **Kumar, A**, Satapathi, S & Indian Institute of Technology Roorkee 2018, "3D Printed Peristaltic Pump with Automated Gear Assembly Fabrication", IN 201811031020. (Patent publication can be accessed at <https://ipindiaservices.gov.in/publicsearch>).
- **Kumar, A**, Das, N, Roy, P, Satapathi, S & Indian Institute of Technology Roorkee 2019, "Cell Cytotoxicity Assay Device and Method of Manufacturing", IN 201911036596.
- **Kumar, A**, Nath, P, Das, N, Satapathi, S, Roy, P, "A Versatile 3D Printed Layer Sandwiching Approach with Integrated Sensing for POC Diagnostics" [Poster], MRS Virtual Spring/Fall Meeting & Exhibit 2020 (virtual; 2020, planned).

AWARDS & GRANTS

Nominated for best B. Tech Project Award, IIT Roorkee (Decision Pending)

October 2020

McKinney Lab Funding (Covered stay at EPFL, Switzerland)

May - Dec 2019

IIT Roorkee Alumni Travel Award

Apr 2019

Indian Association of Physics Teachers Award

Jan 2016

ONLINE COURSES AND CERTIFICATION *(Certificates are hyperlinked)*

Introductory Human Physiology by Duke University, Introduction to the Biology of Cancer by Johns Hopkins University (with Honors), Finding Hidden Messages in DNA (Bioinformatics-I) by UCSD, Generative Design for Additive Manufacturing by Autodesk, LabVIEW Core-1 Certification

SKILLS

Hardware/ Wet Lab

Cell Culture (BSL2/P2)

3D Printing, Bioprinting

AFM (beginner), Confocal Microscopy

Arduino, Electronics, IOT

Software/ Dry Lab

C++, MATLAB, ImageJ Macro

COMSOL, Autodesk Fusion 360

Simulink, NI Multisim

OpenSCAD, GraphPad Prism

LANGUAGES

English



Hindi



French



MEMBERSHIPS

MRS: Materials Research Society

AACR: American Association for Cancer Research

ASCO: American Society of Clinical Oncology

ESMO: European Society for Medical Oncology

REFERENCES

Prof. John McKinney

Full Professor, School of
Life Sciences. EPFL,
Switzerland

john.mckinney@epfl.ch

Prof. Soumitra Satapathi

Associate Professor, Department
of Physics, Indian Institute of
Technology Roorkee.

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Prof. Partha Roy

Professor, Department of
Biotech., Indian Institute of
Technology Roorkee.

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