

Ankit Kumar

(+91) 863 064 7311
akumar3@ph.iitr.ac.in

EDUCATION

Indian Institute of Technology (IIT) Roorkee

Bachelor of Technology, Engineering Physics

2016 – 2020

- Graduated with First Division (81.2%)
- Received Best Bachelors' Thesis Award

École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Bachelors' Thesis, School of Life Sciences

- '3D Bioprinting of Tissue-Mimetics for Infection Biology'

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 trans-ECM 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 the first Lab-on-Chip students' research group in IIT Roorkee.
- 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.
- Developing a point-of-care quantitative blood-albumin assay.

Co-Founder and CTO

Aug 2017 – Jan 2019

LabX Scientific Pvt. Ltd., TIDES IIT Roorkee

- Lead the development of a Smart Spin-Coater equipped with real-time film thickness control.
- Presented at 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.

AWARDS & GRANTS

- Best B. Tech Project Award, IIT Roorkee Nov 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), 3D Printing, Bioprinting, AFM (beginner), Spectrometry, Confocal Microscopy, Arduino, Electronics, IOT

Software/ Dry Lab: C++, MATLAB, ImageJ Macro, COMSOL Multiphysics, Autodesk Fusion 360, Simulink, NI Multisim, GraphPad Prism, Visual Studio

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.

soumitra.satapathi@ph.iitr.ac.in

Prof. Partha Roy

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

partha.roy@bt.iitr.ac.in