Ankit Kumar

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EDUCATION

Texas A&M University
PhD in Biomedical Engineering 2021 -

Indian Institute of Technology, Roorkee
B.Tech in Engineering Physics 2016 – 2020

- Graduated with First Division (81.18%)
- Awarded with Best Bachelors' Thesis Project

RESEARCH & WORK EXPERIENCE

Bachelors' Thesis Project 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 Research Assistant Dec 2016 – Mar 2021
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 Research Assistant June 2018 – Feb 2021
Biotechnology Department, IIT Roorkee. Mentor: Prof. Partha Roy

- Lead the development of a circulating tumor cell liquid biopsy platform using magnetophoresis and microfluidic flow-focusing for tunable capture efficiency.
- Developed 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 APPICATIONS & PUBLICATIONS

- Kumar, A, Satapathi, S & Indian Institute of Technology Roorkee 2018, "3D Printed Peristaltic Pump with Automated Gear Assembly Fabrication", IN 201811031020. (Patent publication accessible 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. (Patent publication accessible at https://ipindiaservices.gov.in/publicsearch).
- 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

Certified Online Courses *(Certificates are hyperlinked)*

Neural Networks and Deep Learning, 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
Software/ Dry Lab:	C++, Python, MATLAB, ImageJ Macro, COMSOL, Autodesk Fusion 360, NI Multisim, Arduino, Electronics, IOT, Neural Networks and Computer Vision.

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. Abhishek Jain
Asst. Professor, Biomedical Engineering, Texas A&M University, USA.
a.jain@tamu.edu

Prof. Partha Roy
Professor, Department of Biosciences & Bioengineering
IIT Roorkee, India.
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