



ALEXYA AZHAKESAN

• Mannheim- 68165, Germany • +49 151 45947204 •

alexya0695@gmail.com • [LinkedIn](#) • [Publications](#)

RESEARCH INTEREST:

- ✓ 3D Bioprinting, Microfluidics
- ✓ 3D *In-vitro* disease modelling
- ✓ High-throughput studies
- ✓ Nanoparticle biofabrication
- ✓ Biomaterial surface modification- with drugs, ligands, and hydrogels
- ✓ Precision medicine and tissue engineering

TECHNICAL SKILLS:

Cell culture & other techniques:

- ✓ Cell culture- 2D, 3D (spheroids, bioprinted, scaffold, organoids) explants (human & animal)
- ✓ Micro patterning
- ✓ Bioreactors
- ✓ Nano biomaterial & hydrogel surface modification
- ✓ Confocal & light sheet microscopy

Biological assays:

- ✓ Protein & RNA Isolation, qPCR, ELISA, Western Blot, IHC, IF

Rheology characterisations:

- ✓ DLS, AFM, FTIR, SEM, XRD, PL

Additive manufacturing

- ✓ Photo- & Soft-lithography
- ✓ Stereo-lithography
- ✓ Extrusion, 2PP
- ✓ Drop-on-Demand (Cellink)

SOFTSKILLS

- ✓ Goal oriented, Resilient
- ✓ Team leader, Multitasker
- ✓ Effective communicator
- ✓ Diligent, Pro-active

LANGUAGE SKILLS

- ✓ English (IELTS-7 C1 Level)
- ✓ German & Dutch (Beginner)
- ✓ Hindi, Telugu (Fluent)
- ✓ Tamil, Malayalam (Bilingual)

Dedicated researcher with expertise in 3D bioprinting, tissue engineering, and bionanofabrication. Specialised in developing functional *in vitro* disease models for drug discovery and precision medicine. Passionate about translating biofabricated models into physiologically relevant tissues for drug testing.

RESEARCH EXPERIENCE

DOCTORAL RESEARCHER, Department Otorhinolaryngology, Head & neck surgery, Medical Faculty of Mannheim, University of Heidelberg, Germany (07/2021-present)

Developed a heterotypic 3D bioprinted head and neck squamous cell carcinoma model for high-throughput drug testing.

MASTER THESIS SCHOLAR, Department of Biomedical Engineering (DBE), AMBER Research Group, University of Twente, the Netherlands (01-08/2020)

Developed a heterotypic 3D spheroid model for hepatocellular carcinoma model and improved the efficacy of drug functionalized-NPs.

GRADUATE RESEARCH ASSISTANT, Department of Politie, the Netherlands and AFT (Advanced Forensics Technology) Research Group, Saxion University of Applied Sciences, the Netherlands (04-09/2019)

Surface functionalized SDE-sensors for the detection of VOCs (Volatile Organic Compounds) using e- nose principle (NDA-signed project).

BACHELOR THESIS SCHOLAR, Department Chemical Engineering & Life Sciences Shiv Nadar University, Uttar Pradesh, India (10/2016-05/2017)

Established extraction and characterization of silica nanoparticles (SiNPs) from rice husk ash (RHA) evaluating drug induced apoptosis in breast cancer cells.

O.U.R RESEARCH SCHOLAR, Department of Nanotechnology & Life Sciences, Shiv Nadar University, India (10/2016-05/2017)

Synthesized hydrophobic Carbon Quantum Dots (CQDs) from Pluronic via One-Pot Synthesis method.

SUMMER RESEARCH INTERN, Department of Material Science Engineering, National Institute of Science and Technology (NIST), Odisha, India (05-07/2016)

Established extraction process of silica nanoparticles (SiNPs) from rice husk ash.

SUMMER INTERN, Department of Research and Development, SNAP Natural and Alginate Products Private Limited, Tamil Nadu, India (05-07/2015)

Established liquid and solid waste management techniques using microbes.

EDUCATION

MEDICAL FACULTY OF MANNHEIM, UNIVERSITY OF HEIDELBERG.

07/2021-Present

Doctoral researcher, Department of Otorhinolaryngology, Head & neck surgery

Mannheim, Germany

Topic: Development of heterotypic 3D bioprinted model for Head & Neck Squamous Cell Carcinomas

[Univ.-Prof. Dr. med. Nicole Rotter](#); [Prof. Dr. Karen Bieback](#); Prof. Dr. Annette Affolter

Summer scholar: The Scientist Entrepreneur (01-03/2025 at the University of Heidelberg, Germany), DKFZ career development (03-07/2024 at DKFZ, Germany), 3D Printing and Biofabrication (11- 15 /07/2022 at the University of Utrecht, Netherlands), Innovation in Medicine (21- 26/ 08/2022 at the University of Groningen, Netherlands) and Entrepreneurship and Innovation (26 - 30/07/2023 at the University of Mannheim, Germany).



SAXION UNIVERSITY OF APPLIED SCIENCES

Masters in Applied Nanotechnology, Specialised in Bionanotechnology
Prof. Dr. Ir. Séverine Le Gac; Prof. Dr. Ruchi Bansal & Prof. Dr. Martin Bennink
Graduated as the 2nd Topper of the Class 2020

09/2018-08/2020
Enschede, the Netherlands

SHIV NADAR UNIVERSITY

Bachelors in Chemical Engineering with a minor in Biotechnology
Prof. Dr. Sanjeev Yadav & Prof. Dr. Dipak Maity
Graduated as the 3rd Topper of the Class 2017

09/2013-05/2017
Uttar Pradesh, India

AWARDS AND HONORS

- ✓ **3rd Best poster award**, ENT Congress 2024, Congress Centre Essen, Germany.
- ✓ **Winner-** Area level International speech contest 2024, Division 95-Toastmasters International
- ✓ **Finalist-** Division level International speech contest 2023, Division 95- Toastmasters International.
- ✓ **Finalist** in Falling Walls Lab Heidelberg 2022 Global Pitch Competition, Heidelberg, Germany.
- ✓ **Finalist** for Best Poster Award in Biofabrication Twitter Conference 2022, ISBF Society.

EXTERNAL AND INTERNAL FUNDING

- ✓ **Landesgraduierten-förderungsgesetz (LGFG) grant**, Doctoral thesis completion grant, Graduate Academy of Heidelberg University, 02- 03/ 2025
- ✓ **PhD position research grant**, 3R network program for the state of Baden-Württemberg (grant number 33-7533-6-1522 / 10/4), 2021-present
- ✓ **O.U.R (Opportunities for Undergraduate Research) grant** for Nanotechnology research proposal, Shiv Nadar Foundation, India, 2016-2017

TEACHING EXPERIENCE

- ✓ **MENTORED- MASTER THESIS STUDENT**, University of Heidelberg, Germany. 01-09/03/2024
Assessment of endothelial angiocrine factors in a 3D *in vitro* cardiomyocyte-endothelial model
- ✓ **MENTORED- SUMMER RESEARCH INTERN**, University of Heidelberg, Germany. 05-09/03/2024
Establishment of image analysis protocol to unveil the cell distribution within a 3D bioprinted HNSCC model
- ✓ **DFG- CHINA EXCHANGE 2023 SYMPOSIUM**, University Hospital of Mannheim, Germany. 30/09/2023
3D Bioprinting Workshop for DFG-China exchange students (30 students)
- ✓ **3D BIOPRINTING WORKSHOP**, University of Heidelberg, Germany. 17-18/01/2022
Course: Evaluation of the chondrogenic capacity of patient derived chondrocytes and chondrogenic progenitor cells; Advanced Masters- Life Sciences (30 students)

LEADERSHIP AND SERVICE

- ✓ **Chair** of 3R- ECRN committee, 3R-Network Baden-Württemberg, Tübingen, Germany, 12/2022- *present*.
- ✓ **Technical support** team, Falling Walls- Berlin Science Week, Germany, 01/11 – 10/11/2024.
- ✓ **President** of Mannheim International Toastmasters, Germany, 07/2023-06/2024.
- ✓ **Co-jury** at Mannheim International Toastmasters- Divisional Contest, Frankfurt, Germany, 26/03/2024.
- ✓ **Moderator** of 3R-YI symposium, 3R network BW conference 2023, Germany, 14-16th 06/2023.
- ✓ **Co-jury and Moderator** at Pitching3RScience contest 2022, 3R- Network Baden-Württemberg, Germany.
- ✓ **Student cohort**, OPLC Saxion University of Applied Sciences, the Netherlands, 10/2018 – 06/2020.
- ✓ **Technical support** team, Micro-Nano conference, the Netherlands- 12/2018.
- ✓ **Department Representative**, Saxion University of Applied Sciences Open day- 11/2018-03/2019.
- ✓ **Treasurer** of Kalakriti- Art & Design Club, Shiv Nadar University, India- 05/2016 – 03/2017.