



AI and ML for Microscopy, Hackathon

Update Dec 20th: Congratulations to all the winning teams for Mic-Hackathon 2024! All submissions can be found [here](#). We will be back soon!

Rank	Team Name	Participants & Affiliations	Code Link	Drive Link
1st Place	GANder: Ferroelastic–Ferroelectric Domains Observed by Image-to-Image Translation	Ralph Bulanadi (University of Geneva, team lead), Kieran J Pang (Justus-Liebig-Universität Gießen), Michelle Wang (Technical University of Denmark)	Code	Drive
2nd Place	AutoScriptCopilot	Participant Xiangyu Yin (Argonne National Laboratory), Yi Jiang (Argonne National Laboratory), Yu-Tsun Shao (University of Southern California), Benjamin Fein-Ashley (University of Southern California)	Code	Drive
3rd Place	Structure Discovery through Image-to-Graph Machine Learning Model	Lauri Kurki (Aalto University, team lead), Harshit Sethi (Aalto University), Jie Huang (Aalto University)	Code	Drive
Student Council Award	Reward based Segmentation: Phase Mapping of 2D Polycrystalline Pd-Se Phases	Kamyar Barakati (University of Tennessee, team lead), Aditya Raghavan (University of Tennessee)	Code	Drive
Honorable Mention	MicroscopyLLM	Adib Bazgir (University of Missouri-Columbia), Ramachandra Praneeth Madugula (New York University), Yuwen Zhang (University of Missouri-Columbia)	Code	Drive
Honorable Mention	Automating AFM through model-driven image segmentation and classification	Sam Welborn (NERSC/NCEM, team lead), Mikolaj Jakowski (UTK), Shawn Patrick (UTK), Alex Pattison (NCEM), Panos Manganaris, Sirisha Madugula (ORNL)	Code	Drive
Honorable Mention	Unmasking biomacromolecular conformational dynamics from 2D analysis of subdomains dynamic modes and molecular kinetics	Ian Addison-Smith (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Barcelona, Spain), Willy Menacho (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Barcelona, Spain) and Horacio V. Guzman (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Barcelona, Spain)	Code	Drive

December 16-17

Participation is FREE and open. Let's build the future of microscopy together!

The closing date for applications is December 16th 2024 (Note: Only virtual sign-ups after: December 2nd).

The hackathon is open to everyone, regardless of background or experience. Our North Star goal is to build the bridge between microscopy and machine learning communities. For microscopists, we welcome participation from all fields—electron, scanning probe, chemical imaging, and all stages of the microscope workflow from sample selection to microscope optimization, data analytics, in-line analysis, automated experimentation, and interpretation. From the machine learning community, we welcome experts in image analysis, optimization, and active learning. Let's build the window between machine learning and the nanoscale world together!

Prior programming experience is not required, but it is recommended for coding projects. We provide the starting materials on the resource page. To learn about the types of projects within the scope of the hackathon, go to the submission page. During the hackathon, the organizers will be available to support you. After the hackathon, we plan to integrate the projects into a scholarly publication. If you are interested in supporting the hackathon as an organizer or acting as a judge, please indicate so on the registration form.

Event timeline

Applications open for participants

[Registration page](#)

Logistics

The event will take place in hybrid (virtual and in-person) mode using a combination of **video conferencing** (Zoom) for meetings and seminars, and **discussion forums** (Slack, Miro).

[Link to join the Slack group.](#)

[Link to access the Miro board.](#) Edit access will be provided after joining the Slack.

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Microscopy Hackathon

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