

UNIVERSITY OF SOUTH BOHEMIA
INSTITUTE OF COMPLEX SYSTEMS
NOVE HRADY, CZECH REPUBLIC

Kaijia Tian '17

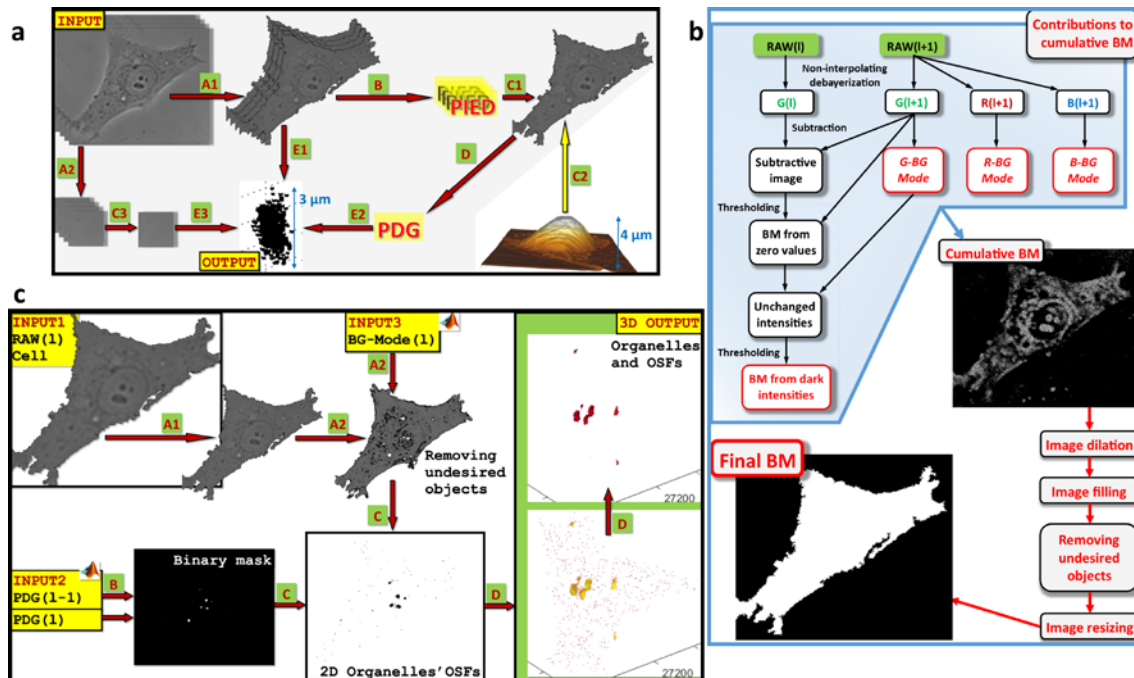
Work Environment

- ❑ Small town of 2,500
- ❑ Research facility well funded
- ❑ Everyone was super supportive and available to answer my questions



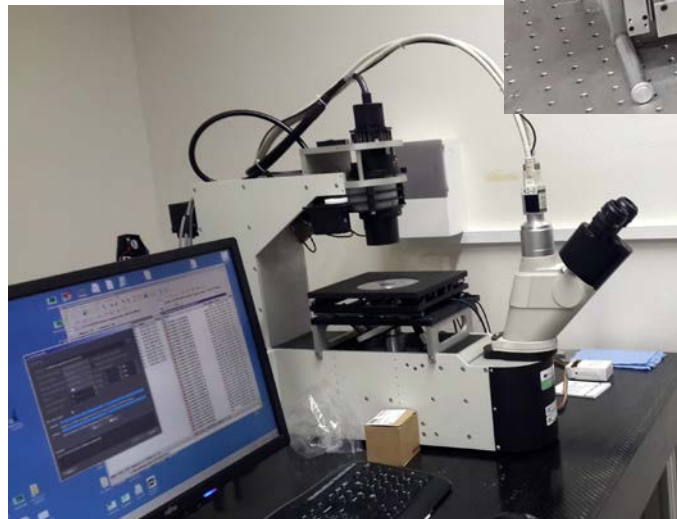
Projects

- 3D reconstruction of organelles through microscopy with Renata Rychtarikova
- Protein crystallization and atomic force microscopy (AFM) of living cancer cells with Daria Malakhova



3D Reconstruction of Organelles

- Used nanoscope to take Z-stack of living cancer cells
- Ran and improved MATLAB algorithms for more efficient image processing
- Tested and calibrated new designs of microscopes



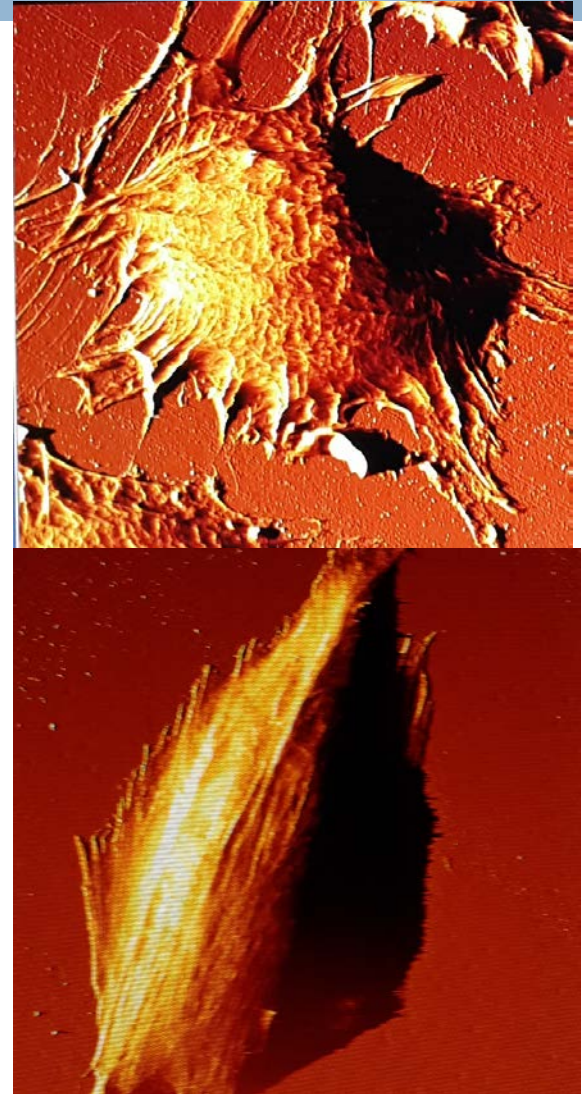
Protein Crystallization

- ❑ Crystallized lysozyme by sitting drop and microseeding
- ❑ Determined the optimal ratio of the drop to yield large enough crystals to be scanned by AFM



Atomic Force Microscopy

- Determined the most compatible substrate for each cell line
- Cultured cells
- Trained in using AFM machine to take elasticity measurements
- Designed protocol for future use



Most Rewarding Experiences

- Taking over the projects: independence
- Contributing to papers
- Presented my findings to a panel of professors and researchers
- Traveled both within the Czech Republic and in surrounding countries



Contribution to Organization

- Contributed to image bank by taking images that could be used for future organelle analysis
- Protein crystallization and AFM are completely new, understaffed projects
- Created a foundation for others to build off of



Personal Impact

Academics

- Learned about protein crystallization techniques and using AFM, which could be helpful in future research opportunities

Career Plans

- Exposed me to a life in research
- Determined whether or not the Czech Republic is somewhere I want to live and work

