

# There is a First Time for Everything!

Haripriya (Priya) Sakthivel

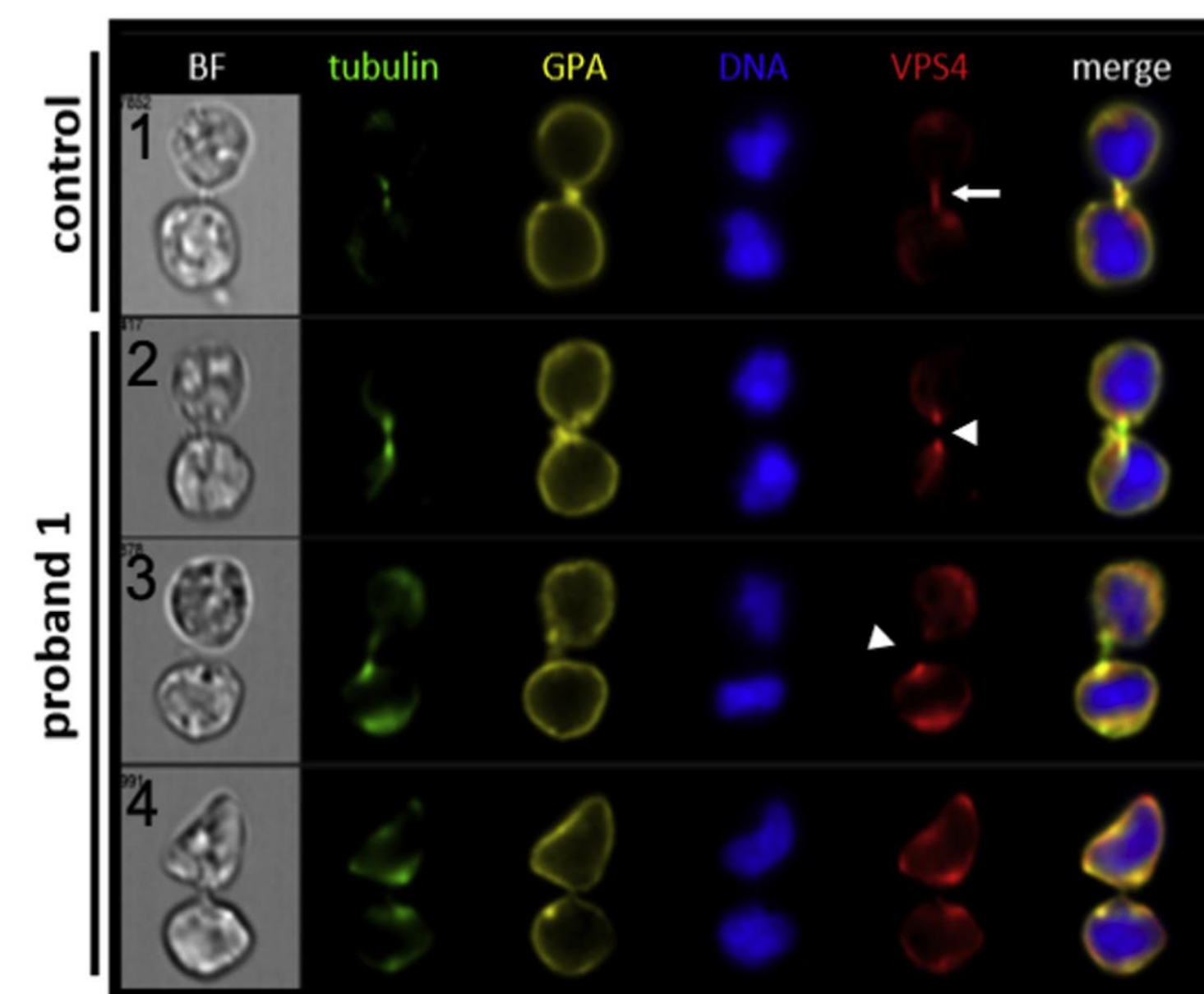
Senior in BME, Pre-Medicine, Minor in Psychology

## First Time Doing Research

Hematology Student with Dr. Theodosia Kalfa

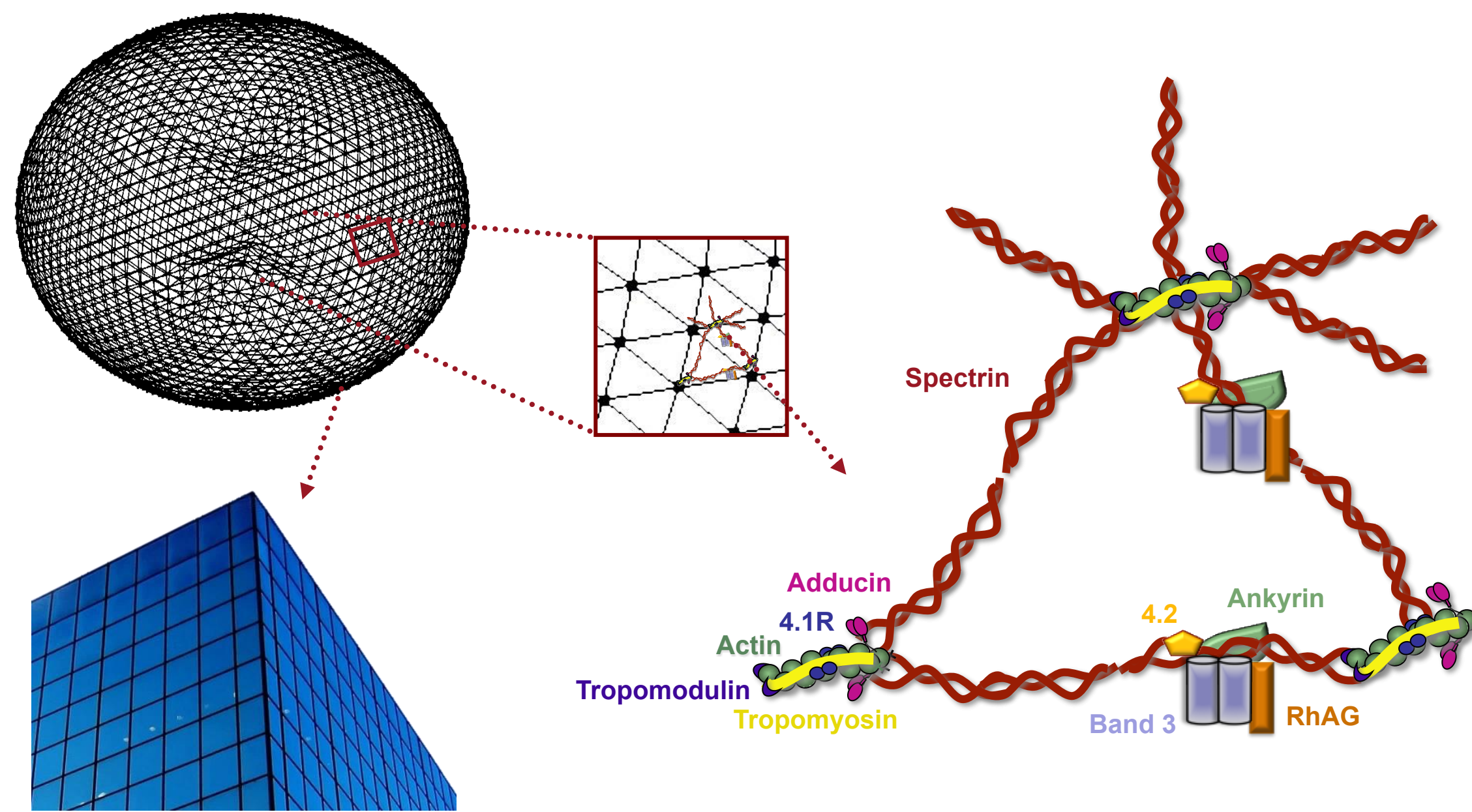
SURF 2016 - 2018, Cincinnati Children's Hospital Medical Center

**VPS4A is Critical for Normal Red Blood Cell Maturation**



**Figure 1:** Imaging flow cytometry (IFC) analysis of VPS4 localization in dividing erythroblasts showing  $\beta$ -tubulin (green), DNA/Hoechst (blue), VPS4 (red) and glycophorin A (yellow). Post-mitotic erythroblasts with mutant VPS4A remain connected with persistent cytoplasmic bridges, indicating abscission failure (panel 4) [Seu KG (2020)].

**A RBC's Highly Deformable Biconcave Disk Shape is Maintained by its Cytoskeleton**



**Figure 2:** RBC cytoskeleton that structurally underlies the membrane. Multiprotein complexes embedded into the RBC membrane bind the cytoskeletal network of spectrin.

**Implications: Plasmodium Falciparum malaria infection!**

Dr. Philip Low (Chemistry) & Dr. Jacqueline Linnes (BME)

## First Time Working in Industry

Robotics Front End and Lifecycle R&D Co-op



**Figure 3:** HARMONIC ACE®+ Shears with Adaptive Tissue Technology (left) and PROXIMATE® Rotating-Head Skin Stapler (right) [Ethicon (2022)]



### Skills gained:

- CAD modeling
- Kinematic simulations
- Statistical analysis
- Drawings
- IP research
- Networking
- Organizational leadership
- Teamwork

## First Time Taking a Gap Year

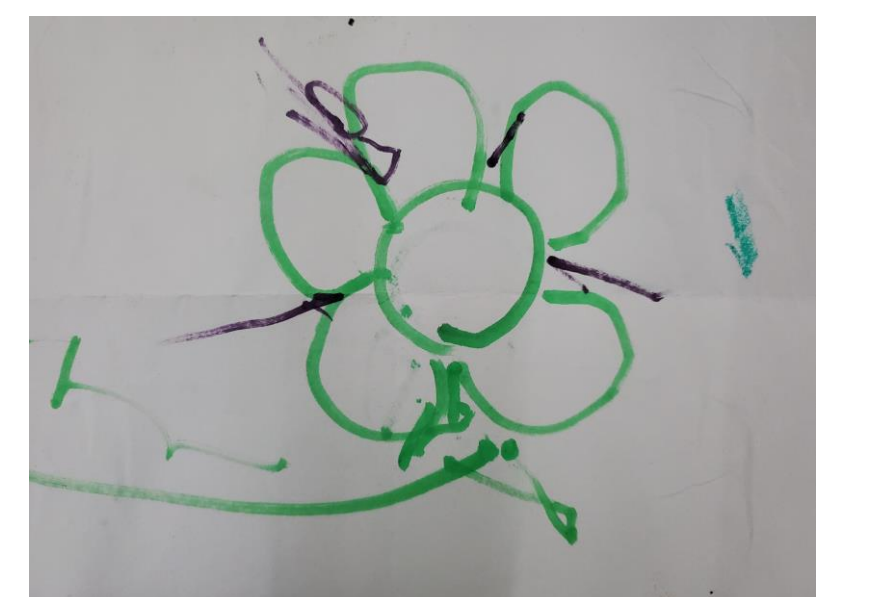
Crisis Hotline Specialist with **MHA** Mental Health America  
National Suicide Prevention Lifeline (988)

Hospice Volunteer with **Elara Caring**

Retail Salesperson with New Age Spirit

Butcher Student Helper with Purdue Butcher Block

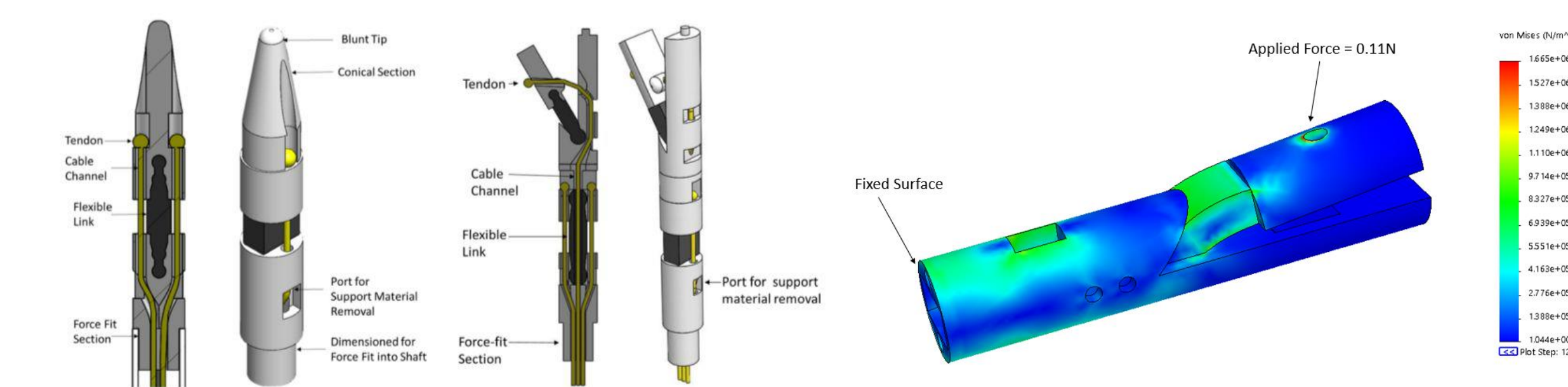
Preschool Teacher Assistant with **Bauer** Family Resources



## First Time Outside of BME

Device Design Student with Dr. Dave Cappelleri

Mechanical Engineering, Purdue University



**Figure 4:** Design of Compliant Three-Dimensional Printed Surgical End-Effectors for Robotic Lumbar Discectomy [Johnson BV (2019)] Von Mises stress distribution plot from grasping end effector simulation [Craker R (2020)]

## Ask me about the first time I...

- Went on a medical trip to Peru w/ Caduceus Club
- Witnessed a triple cardiac bypass surgery
- Analyzed EEG signals
- Instead of a fountain run, did a fountain bike ride

## What I'm doing now for the first time...

- Research assistant with Dr. Daniel Foti in clinical psychology
- Teaching assistant for BME304 with Dr. Vitaly Rayz
- Part time clinical coordinator with Dr. Young Kim

