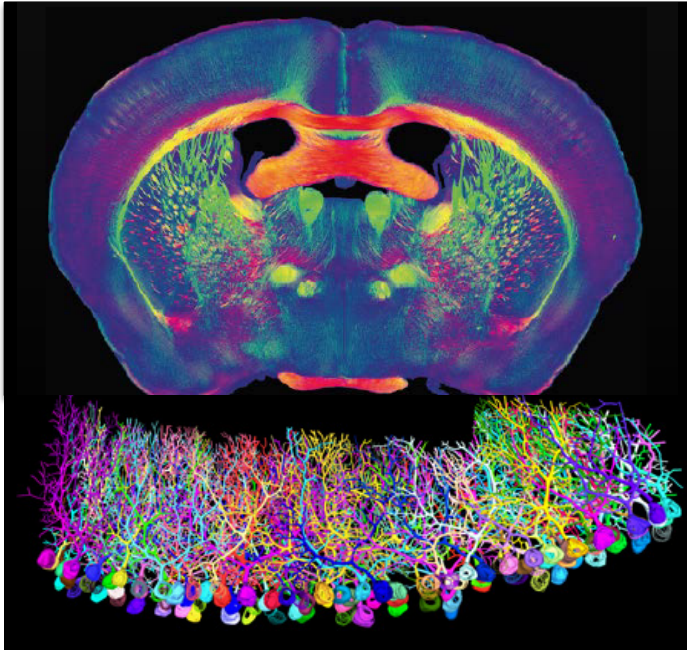


Overview:

- Students will be introduced to cutting-edge technology used to map neurons and their functions
- Using a transgenic approach students will analyze both the connections of a single population of neurons and the effects of stimulating their activity *in vivo*



Brainbow Jean Livet and Jeff Lichtman and Hermina Nedelcsu (bottom image)

Lecture Topics:

1. Neuron excitability
2. New tools for surveying neurons and their connections
3. Remote control of neuronal activity
4. Working with transgenic animals
5. Behavior in model organisms
6. Animal models of neurobiological disorders
7. Neuroscience therapeutics

Labs:

- | | |
|---|---------|
| 1. Exploring neuron excitability in insects | 1 week |
| 2. Preparation and handling of brain tissue from transgenic mice | 1 week |
| 3. Mapping neurons and their connections with fluorescent microscopy | 2 weeks |
| 4. Remote control of neuronal activity (part 1): analysis of DREADD induced neuronal activation | 2 weeks |
| 5. Remote control of neuronal activity (part 2): analysis of DREADD induced behavior | 1 week |