

Connections between neurons can be mapped by acquiring and analyzing electron microscopic (EM) brain images. In recent years, this approach has been applied to chunks of brains to reconstruct local connectivity maps that are highly informative, yet inadequate for understanding brain function more globally. In my talk, I will discuss the first neuronal wiring diagram of a whole adult brain that we recently reconstructed and the technological advances that lead up to it. This resource contains  $5 \times 10^7$  chemical synapses between ~139,000 neurons reconstructed from a female *Drosophila melanogaster* and incorporates annotations of cell classes and types, nerves, hemilineages, and predictions of neurotransmitter identities. We show how to derive a projectome, a map of projections between regions, from the connectome and demonstrate the tracing of synaptic pathways from inputs (sensory and ascending neurons) to outputs (motor, endocrine, and descending neurons). The technologies and open ecosystem of the FlyWire Consortium set the stage for future large-scale connectome projects in other species and the lessons learned from it will guide the reconstruction of future connectomics datasets.