



Emergence of organization and computation in neural circuits across scales

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Many nervous systems develop and form functional circuits through a long period of development involving a myriad of mechanisms. Some of these are determined by genes and molecules, while others depend on neural activity patterns. I will present modeling work for how these diverse mechanisms work together to set up neural circuits shortly after an animal is born, enabling it to gradually acquire its cognitive and behavioral capabilities. I will focus on the visual system, and demonstrate how neural circuits became established and capable of performing different computations.