

Research Assistant Position: Behavioral and Neural Basis of Vocal Communication in Zebra Finches

The Birds Lab, located at IPM School of Cognitive Sciences, is seeking interns who have the potential to become research assistants during this summer. Our research focuses on understanding the behavioral and neural mechanisms underlying vocal communication in zebra finches.

Required Skills:

- **Background in Systems Neuroscience:** We are looking for candidates with a solid understanding of systems neuroscience principles.
- **Proficiency in MATLAB Programming:** Mastery of MATLAB is essential for data analysis, visualization, and modeling (Python is also accepted).
- **Interest in Neuroethology of Songbirds:** Enthusiasm for studying the fascinating neuroethological aspects of songbird behavior is crucial.
- **Willingness to Learn Surgical Techniques and Electrophysiological Recording:** Candidates should be open to acquiring skills related to surgeries, electrophysiological recordings, and other wet lab procedures.
- **Availability for On-Site Work:** Applicants must be available for at least two days of on-site work per week.
- **Long-Term Commitment:** Since our projects require time for meaningful results, we prefer candidates who are available for at least the next two years.

Application Deadline: August 1st If you are interested, please send your CV, Statement of Purpose (SOP), and recommendation letters to birdslab@ipm.ir

If you want to get familiar with this field of study, watch [this playlist](#) or scan the QR code.

If you have any questions please contact: bahramani@ipm.ir

Singin' in the Brain

BY DWAYNE GODWIN & JORGE CHAM

THINK YOU HAVE A MIND FOR MUSIC?

MEET THE ZEBRA FINCH.

HAILING FROM AUSTRALIA AND SOUTHEAST ASIA, IT'S ONE OF THE MOST STUDIED BIRDS IN SCIENCE.

ITS ABILITY TO LEARN AND MODIFY SONGS (AND BREED EASILY IN CAPTIVITY) HAS MADE IT A POPULAR MODEL FOR STUDIES OF LEARNING, MEMORY AND SENSORIMOTOR INTEGRATION.

THE BRAIN NETWORK THAT SUPPORTS THE ZEBRA FINCH'S ABILITY TO SING HAS BEEN WELL DOCUMENTED:

HIGH VOCAL CENTER

LATERAL MAGNO-CELLULAR NUCLEUS

ONE AREA IN THIS NETWORK, THE HIGH VOCAL CENTER, IS PARTICULARLY SENSITIVE TO HORMONES AND CONTINUES TO DEVELOP WELL INTO THE BIRD'S ADULTHOOD.

FOR EXAMPLE, THIS AREA IS EIGHT TIMES LARGER IN MALES THAN IN FEMALE ZEBRA FINCHES, WHICH DON'T SING AS MUCH.

A ZEBRA FINCH'S SONG REPERTOIRE COMES FROM SEVERAL SOURCES:

THE ABILITY TO PRODUCE CERTAIN SOUNDS AND COMPOSE THEM INTO SONGS MAY BE ENCODED IN THE BIRD'S DNA.

IN ADDITION, A YOUNG MALE HATCHLING WILL MEMORIZE ITS FATHER'S SONG AND THEN PRACTICE UNTIL IT CAN REPEAT IT NEARLY PERFECTLY.

A ZEBRA FINCH WILL ALSO IMPROVISE AND INCORPORATE SOUNDS AND OTHER FRAGMENTS OF SONGS FROM ITS ENVIRONMENT.

THESE BIRDS HAVE GIVEN US A WEALTH OF KNOWLEDGE ABOUT BRAIN PLASTICITY AND ADAPTATION IN THE EARLY NERVOUS SYSTEM. WHO SAYS A ZEBRA CAN'T CHANGE ITS STRIPES?

SCIENCE

