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From: <cc-undergraduateacademics-request@lists.gatech.edu> on behalf of CoC Undergraduate Academics <UndergraduateAcademics@cc.gatech.edu>
Sent on: Monday, November 20, 2023 8:41:53 PM
To: cc-undergraduateacademics@lists.gatech.edu
Subject: [cc-undergraduateacademics] Student Alert: Research opportunity and new courses
Attachments: GT AI_NLP undergraduate research (Xu_Ritter) (1).docx (14.43 KB)

Dear Students:

This alert contains the following items: AI/NLP research opportunity/ New Course announcements: PSYC 3803, PSYC 4803, and ISYE 4803.

Spring 2024 AI/Natural Language Processing Research Opportunity (see attached flyer)

New Course: PSYC 3803 Models of the Mind and Brain - MW 9:30am – 10:45am (In-person)

This class will introduce students to the current state-of-the-art computational models of the human brain and behavior, survey the progress of this emerging field, and outline the strengths and limits of current approaches. Students will be expected to develop, interact, and experiment with computational models in group projects. Broader questions discussed in this class include: What does it mean to build a model of a cognitive domain? What is the value of computational models in our understanding of the human brain and mind? How do we compare models to data? Will making models more human-like also make them more intelligent? This class will focus mostly on models of vision and language, as well as their relationship with higher cognition and thought. We strongly recommend students only sign up for this class if they have taken at least one programming class.

New Course PSYC 3803 Physics of Cognition - WF 2:00pm – 3:15pm (In-person)

Unlike an artificial neural network, neural systems exhibit a high degree of variation at all scales, from molecules to neurons to networks to individuals, in space and in time. Yet, the brain is capable of cognitive feats that artificial neural networks perform badly or not at all, with training sets and energy consumption that are orders of magnitude less than those used by modern machine learning and artificial intelligence. Understanding how this is possible motivates deeper study of the "physics" of biological neural networks. This course surveys a selection of fundamental insights into perception, memory, and learning motivated by physical principles. In the first part of this course, we trace the interaction between physics and psychology, from Helmholtz to Hopfield, examining at a mechanistic level the physical basis of cognition. In the second part of the course, we turn to modern neural recording methods, and what we can learn from these data using tools developed for studying complex systems in physics. Students will explore these concepts through direct engagement with classic and modern literature, culminating in a project in which they model a neural system or analyze a dataset of their choice.

If you have any questions regarding these courses, please direct them to Dr. William Stern, the Psychology advisor (wstern@gatech.edu). Thank you!

New Course- ISYE 4803: Public Health Systems

In Spring 2024, Professors Pinar Keskinocak and Nicoleta Serban will offer a course in Public Health Systems. Course registration is by instructor approval only (please scroll down for instructions).