

סמינר בשיטות אימות פורמלי

## Seminar on Verification of Deep Neural Networks

236814

סמסטר א', תשפ"ב

פרופסור ארנה גרימברג (orna@cs.technion.ac.il)	מרצה:
מבוא לאימות תכנה 236342 או מבוא למערכות לומדות 236756	דרישות קדם:
ב' 14:30-16:30	שעת הרצאה:
	אתר הקורס:

Deep neural networks have been widely used in recent years in many applications, including safety-critical ones. It is therefore highly important to guarantee that systems including neural network components work correctly.

Formal methods provide many techniques and tools

- For checking whether a system satisfies a desired specification;
- For identifying vulnerabilities;
- For automatically repairing a problematic program; and even
- For synthesizing a correct system from a given specification.

In this seminar we will learn how to apply different formal methods to solving a variety of verification problems for systems that include neural networks.

### Prerequisites:

Knowledge in either deep learning or formal methods is required.

If you have not taken any of the courses mentioned above but you have background in either of them, please get in touch with the course lecturer: [orna@cs.technion.ac.il](mailto:orna@cs.technion.ac.il)

### Course workload:

- Choose a paper from the list that will be provided in the first lecture.
- Read it thoroughly and understand it well. If needed, search for additional material in the literature.
- One week before your lecture present to me a draft of your presentation.
- Present the paper in class:  
The presentation should be in English. The lecture can be given in Hebrew or English.
- Be active in all classes by presenting questions and initiating a discussion.

**Attendance is mandatory.**