TAMIDS SciML Lab Workshop: Julia Softwares for Scientific Machine Learning

Steven Shao-Ting Chiu

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Presenter

- Steven Shao-Ting Chiu (https://stevengogogo.github.io/Resume.io/) — Ph.D. Student, Department of Electrical Engineering
- Advisor: Dr. Ulisses Braga-Neto

Background and Objectives

Julia (https://julialang.org/) is a generic programming language designed for high-performance computing. It solves the "two language problem" that typically occurs in scientific computing. Julia is dynamically typed like scripting language such as Python and can be compiled into native machine code. Besides, composablility via multiple dispatches makes Julia works well on the integration across packages. SciML (https://sciml.ai/) is an open-source software for scientific machine learning based on the Julia language that combines machine learning and scientific computing by integrating numerous standalone packages. Notably, Julia is an open-source project under an MIT license.

This worhshop aims to introduce the potential of the Scientific Machine Learning field with Julia programming language. First, we will give an introductory overview of the Julia programming language and explore the Julia SciML ecosystem as an example of its application.

Both sessions will include presentations and hands-on sessions. Prior knowledge of Python is recommended, and participants are encouraged to bring their own laptops.

Schedule

Table 1: Schedule (Total: 2hrs)

Time	Content
25 min	Introduction to the Julia Programming Language
25 min	The Julia SciML Ecosystem
10 min	Break
30 min	Hands-on session with nerual differential equation
30 min	Hands-on session with SciML application