TAMIDS SciML Lab Workshop: Julia Softwares for Scientific Machine Learning

Steven Shao-Ting Chiu

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Presenter

- Steven Shao-Ting Chiu - Ph.D. Student, Department of Electrical Engineering

Biography

Steven Shao-Ting Chiu is currently a Ph.D. student in the Department of Electrical Engineering at Texas A&M University. He holds a Bachelor of Science in Electrical Engineering and a Master of Science in Bioinformatics at National Taiwan University, completed in 2018 and 2021 separately. In 2021, he was an intern at Pumas-AI, Inc., and implemented Scientific Machine Learning tools for the application of pharmaceutics and personalized medicine.

Background and Objectives

Julia (https://julialang.org/) is a generic programming language designed for high-performance computing and an open-source project under an MIT license. Julia language is aimed to solve 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 dispatch makes Julia works well on the integration across packages. SciML (https://sciml.ai/) is open-source software for scientific machine learning based on the Julia language that combines machine learning and scientific computing by integrating numerous standalone packages.

This worhshop aims to introduce the potentials of the Scientific Machine Learning Field with Julia programming language.

Schedule

Table 1: Schedule

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