

Teaching AI to Actuaries

UNSW Risk and Actuarial's ACTL3143 & ACTL5110

Dr Patrick Laub

Deep learning for actuaries

“ohohoh loving him was red touching him was like realizing all of drop it all eyes and i hope you know that everytime i don't i almost do i have...” (Taylor-Swift-like AI submission)

- New in 2022
- Practical orientation
- Python
- Tabular data
- Sequence data (RNN)
- Image data (CNN)
- Text data (NLP)
- Generative nets

Weekly tasks

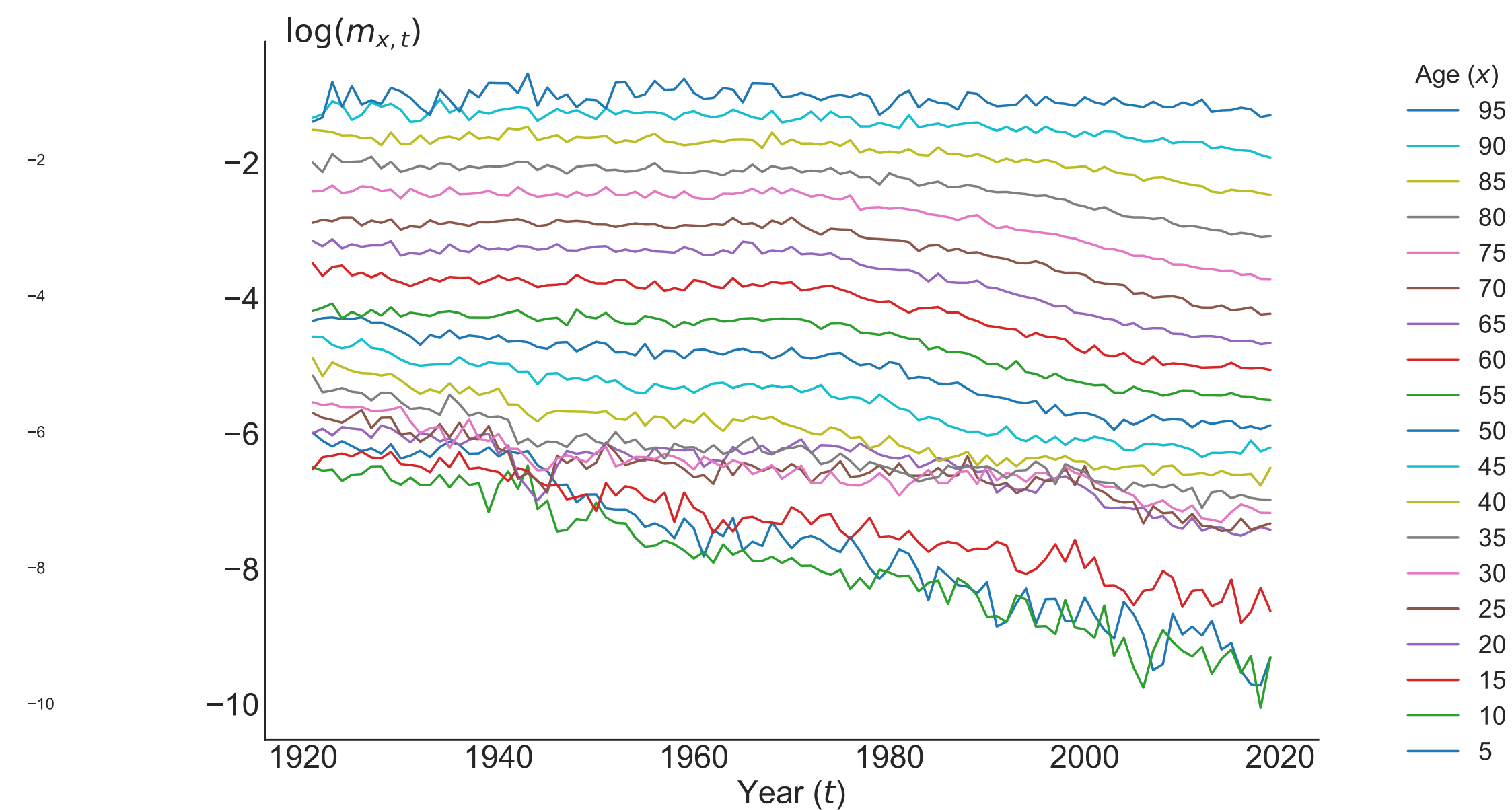
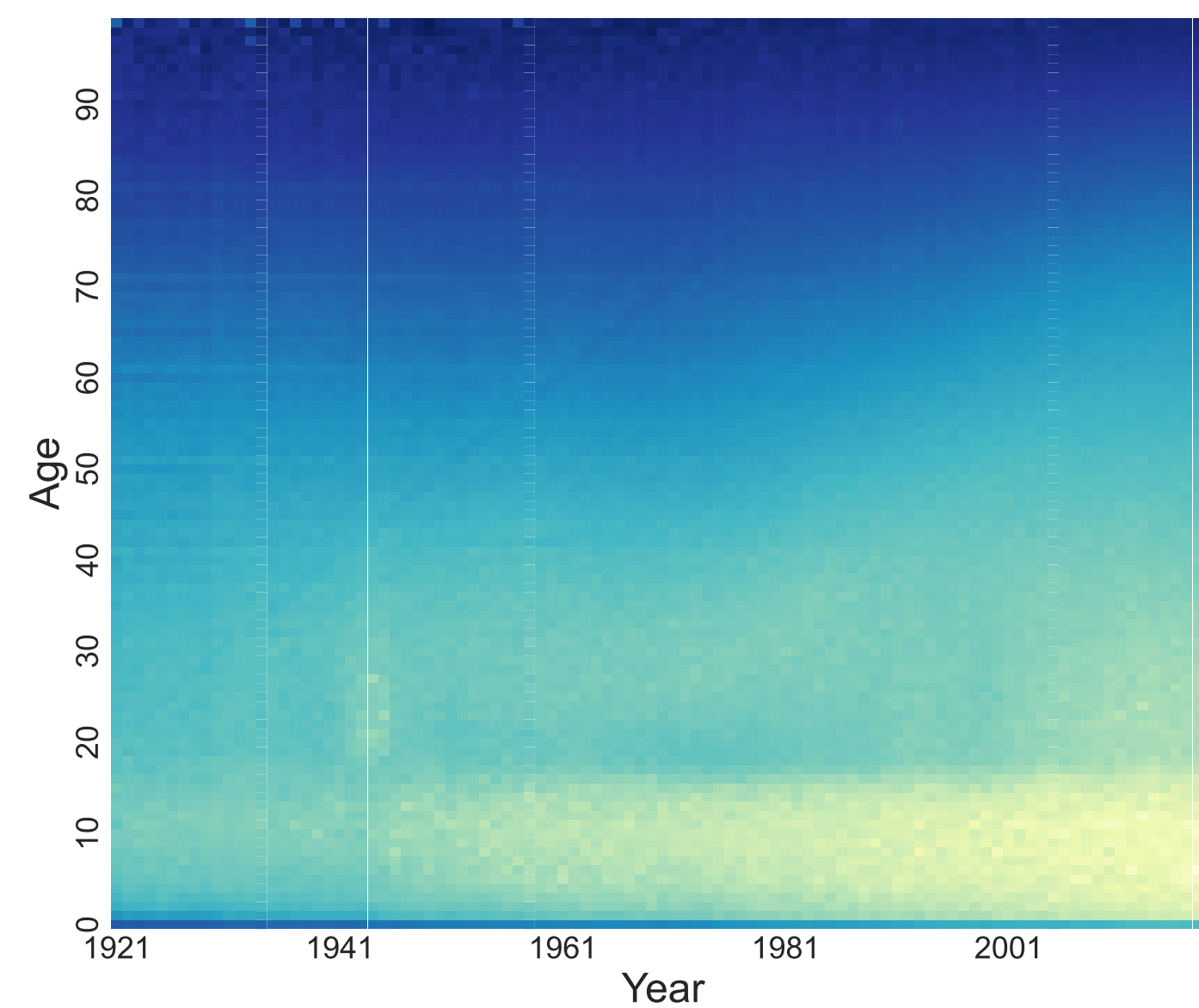
- **Chess AI**
- **Motor:** predict claims frequencies for a portfolio of French motor contracts.
- **Stroke:** prediction incidents of strokes given health information.
- **Stocks:** Use RNNs for time series forecasting of stocks.
- **Hurricane damage:** Given a satellite image, use CNNs to classify whether a hurricane caused damage to the property or not.
- **Police reports:** Given police reports of motor accidents, use NLP to classify whether or not serious bodily injury was caused by the accident.

Lee and Carter go Machine Learning: Recurrent Neural Networks

Ronald Richman*

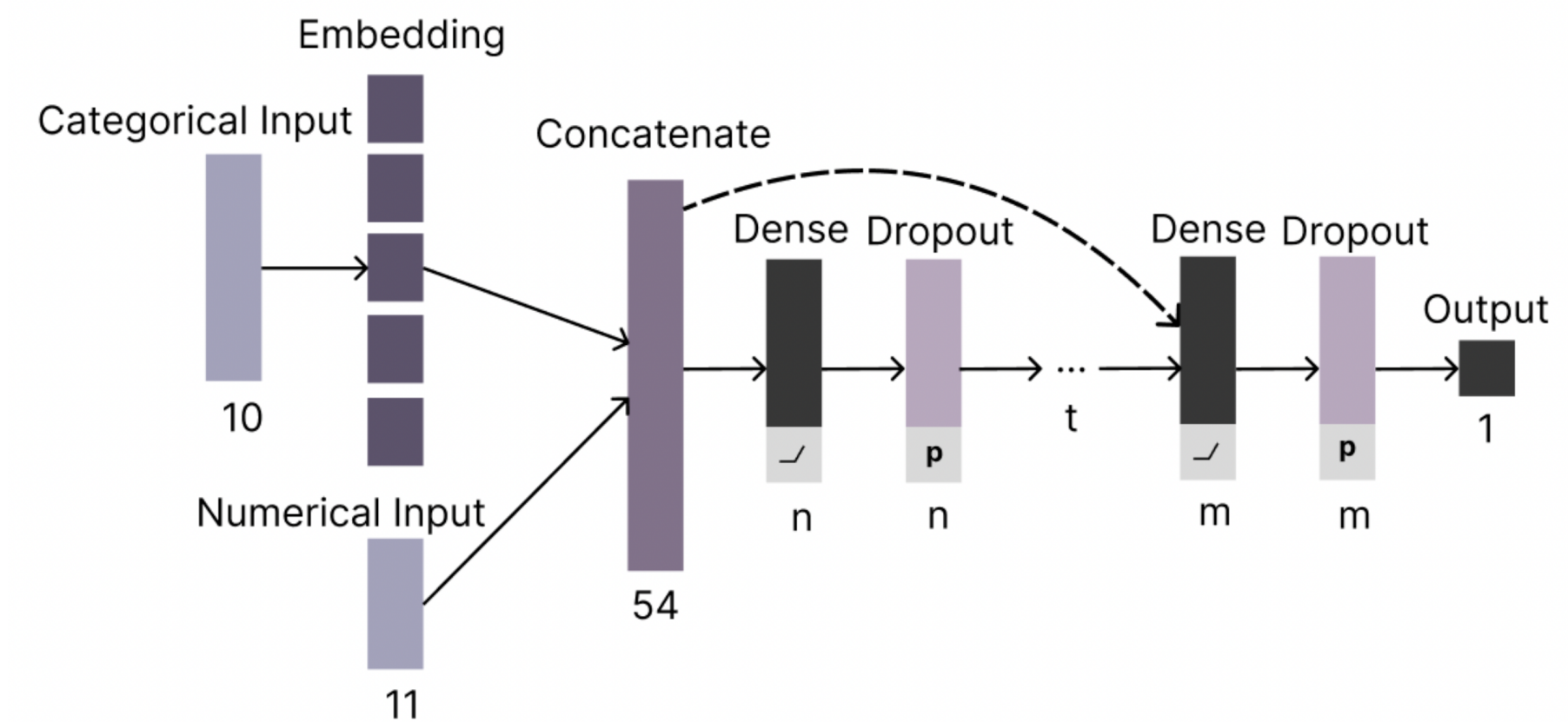
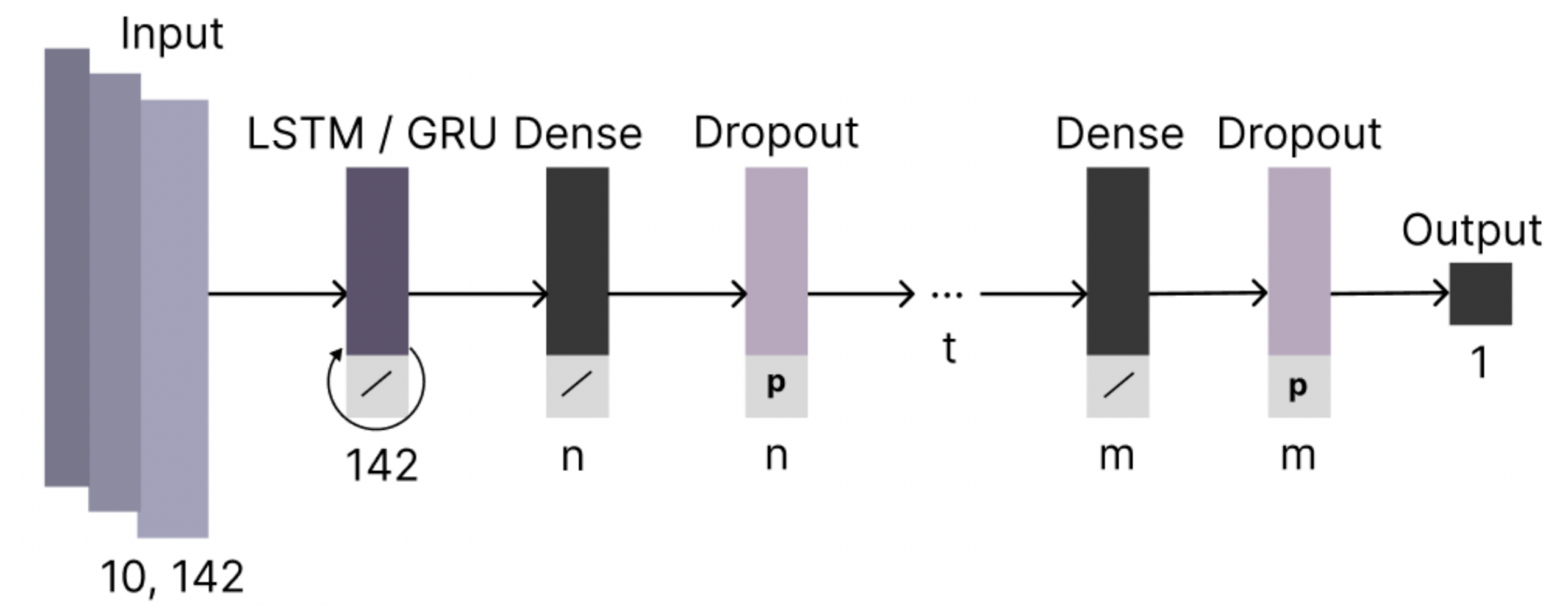
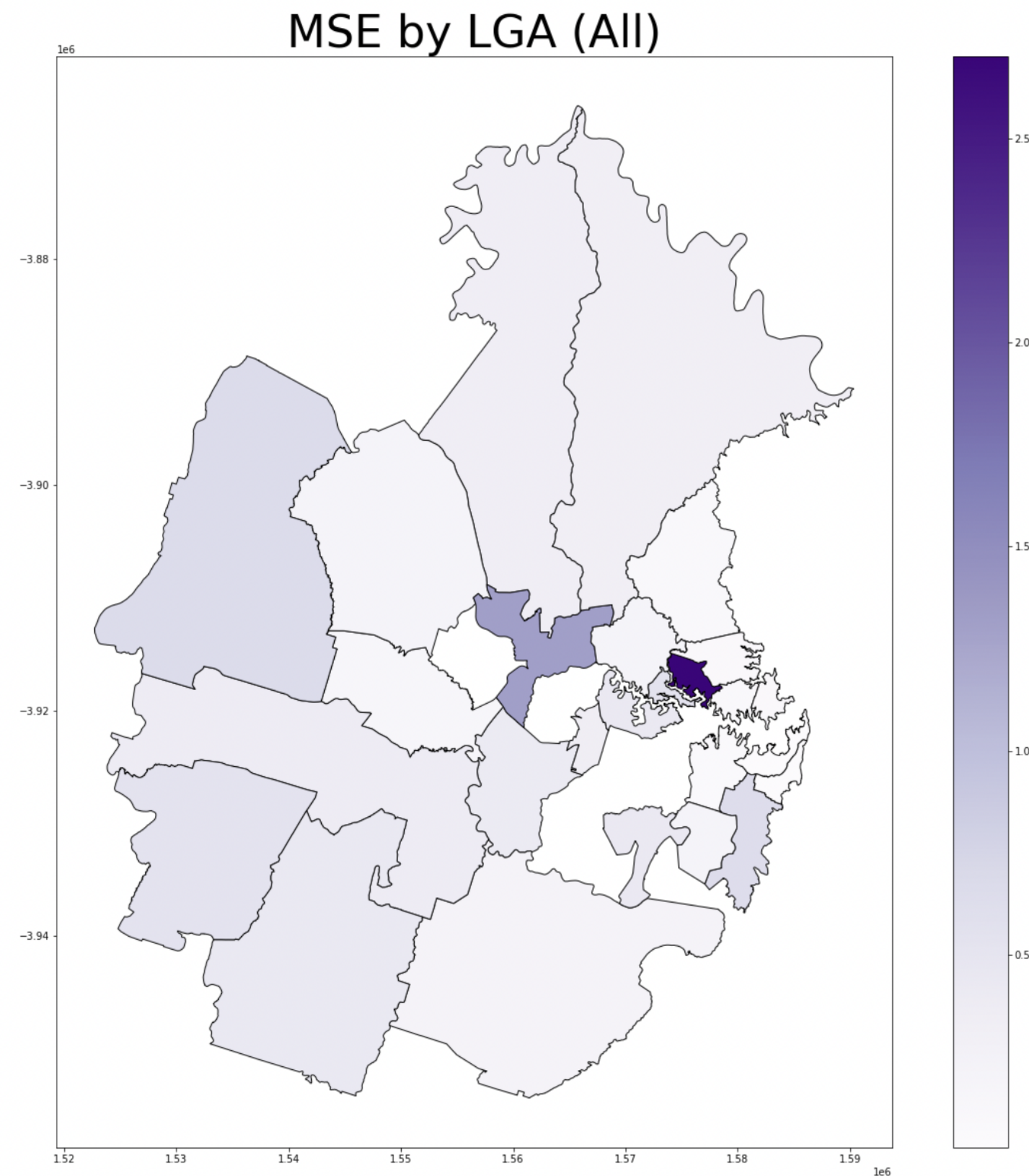
Mario V. Wüthrich†

Prepared for:
Fachgruppe “Data Science”
Swiss Association of Actuaries SAV



Source: Jovana Kolar, ACTL3143 Project 2022

Sydney house price prediction



Source: Rishi Dhushiyandan, ACTL3143 Project 2022

The search for exoplanets

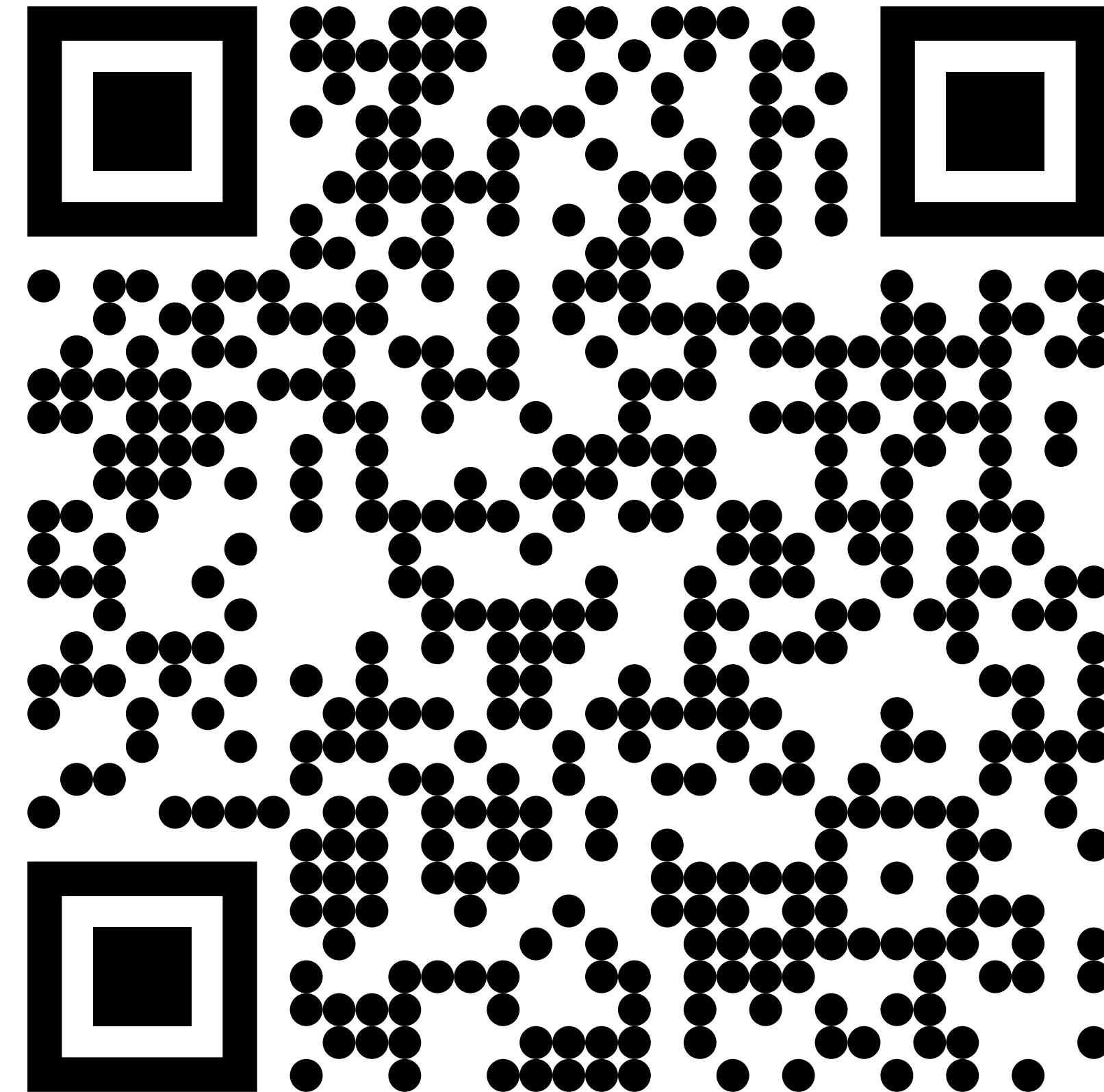


Source: Tara Dabrowski, ACTL3143 Project 2022

Get involved!

- *Guest lecture*
- Assessment
 - A week-long task
 - A term-long task
- Next in T2

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