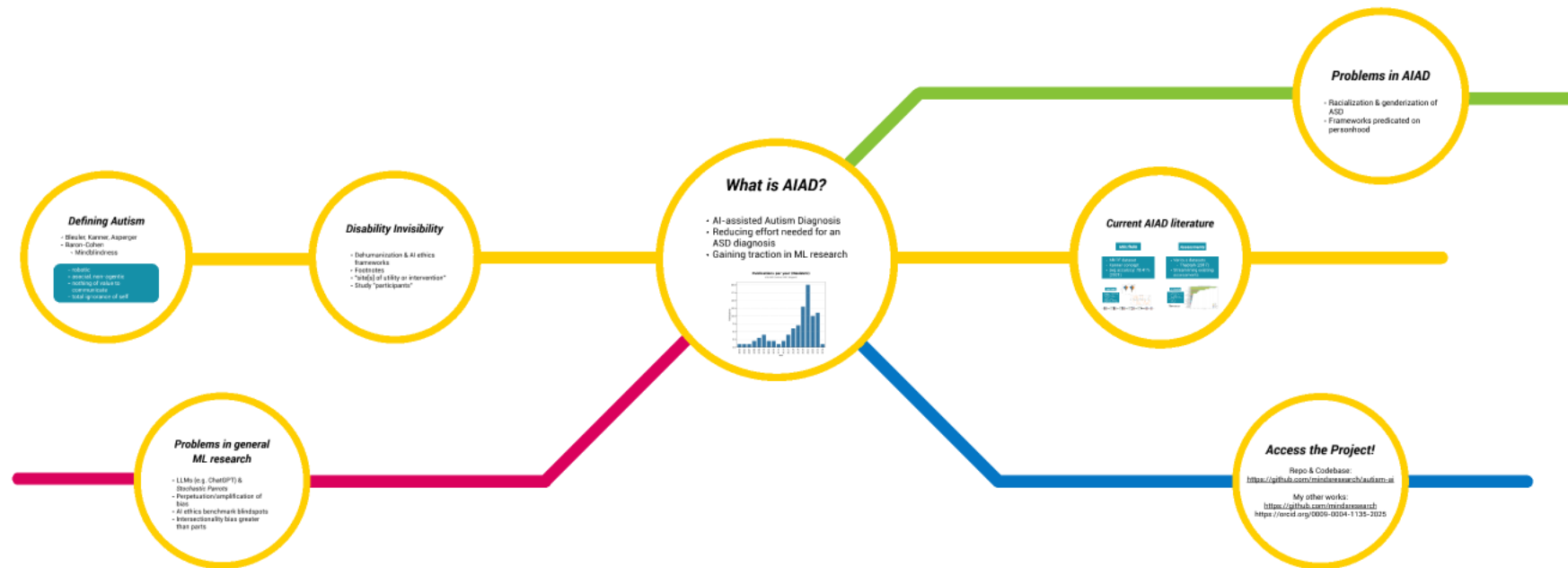


On the Dangers of AI Autism Diagnosis

Noah Duggan Erickson
ICDS Scholars Week 2024

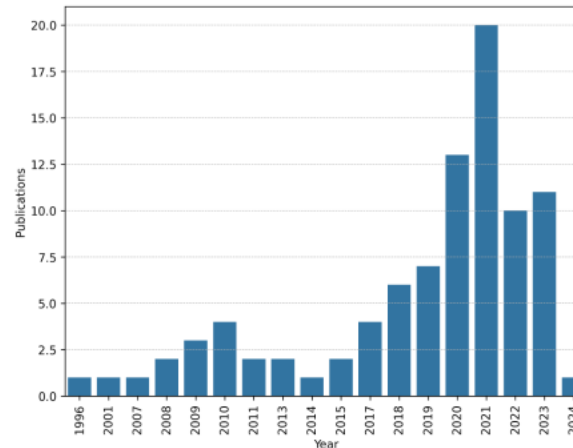


What is AIAD?

- AI-assisted Autism Diagnosis
- Reducing effort needed for an ASD diagnosis
- Gaining traction in ML research

Publications per year (NexisUni)

(AI) AND (Autism) AND (diagno*)





Problems in general ML research

- LLMs (e.g. ChatGPT) & *Stochastic Parrots*
- Perpetuation/amplification of bias
- AI ethics benchmark blindspots
- Intersectionality bias greater than parts



Disability Invisibility

- Dehumanization & AI ethics frameworks
- Footnotes
- "site[s] of utility or intervention"
- Study "participants"

Defining Autism

- Bleuler, Kanner, Asperger
- Baron-Cohen
 - Mindblindness

- robotic
- asocial, non-agentic
- nothing of value to communicate
- total ignorance of self

Current AIAD literature

MRI/fMRI

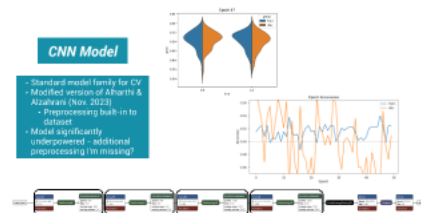
- ABIDE dataset
- Kanner concept
- avg accuracy: 78.41% (2021)

Assessments

- Various datasets
 - Thabtah (2017)
- Streamlining existing assessments

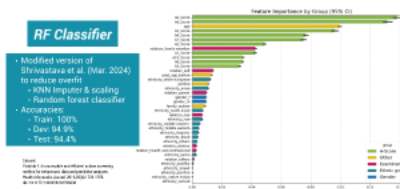
CNN Model

- Standard model family for CV
- Modified version of Aharthi & Alzahrani (Nov. 2023)
 - Preprocessing built-in to dataset
- Model significantly underpowered - additional preprocessing I'm missing?



RF Classifier

- Modified version of Shrivastava et al. (Mar. 2024) to reduce overfit
 - IKNN Imputer & scaling
 - Random forest classifier
- Accuracies:
 - Train: 100%
 - Dev: 94.9%
 - Test: 94.4%



MRI/fMRI

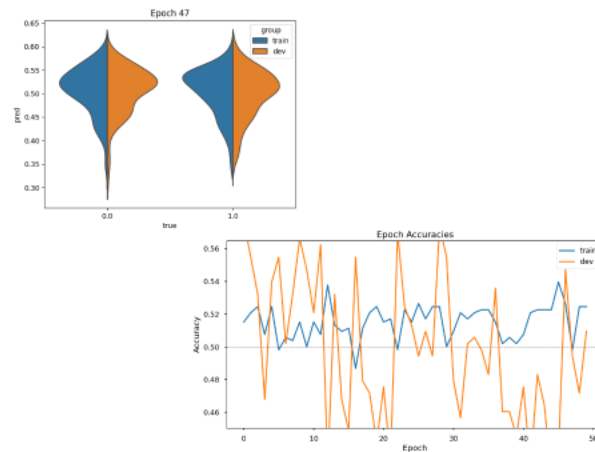
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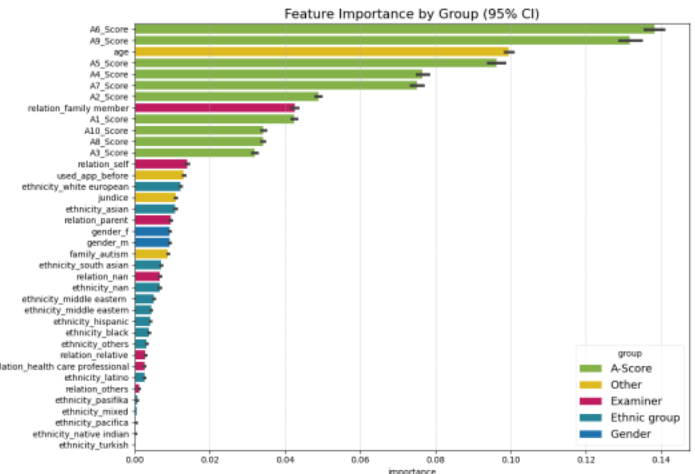
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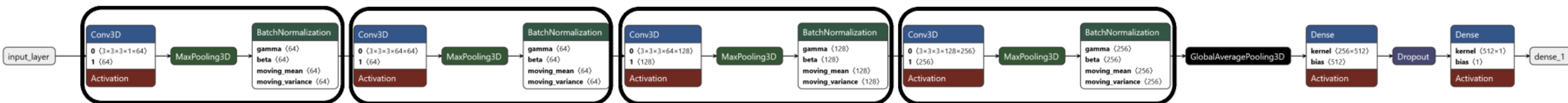
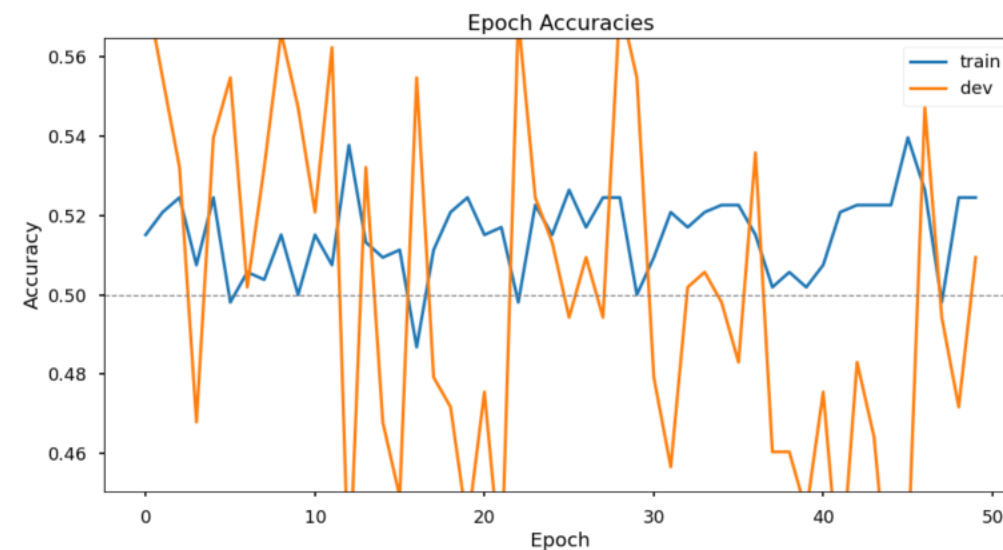
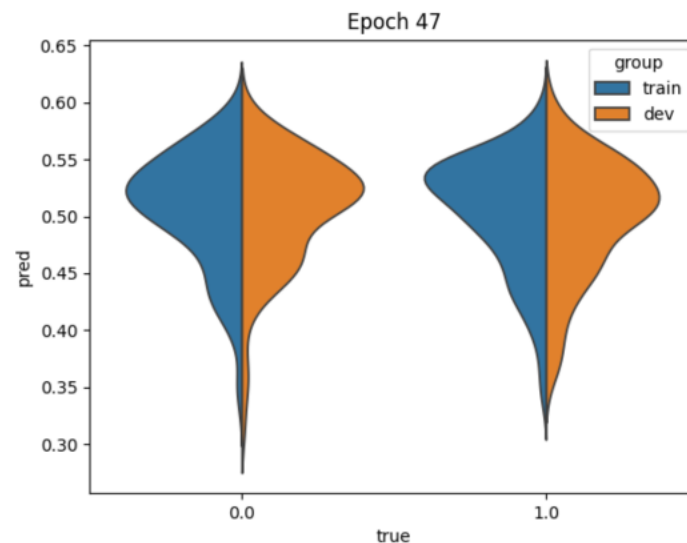
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Thabtah F. An accessible and efficient autism screening method for behavioural data and predictive analyses. *Health Informatics Journal* 2019;25(4):1739-1755. doi:10.1177/1460458218796636

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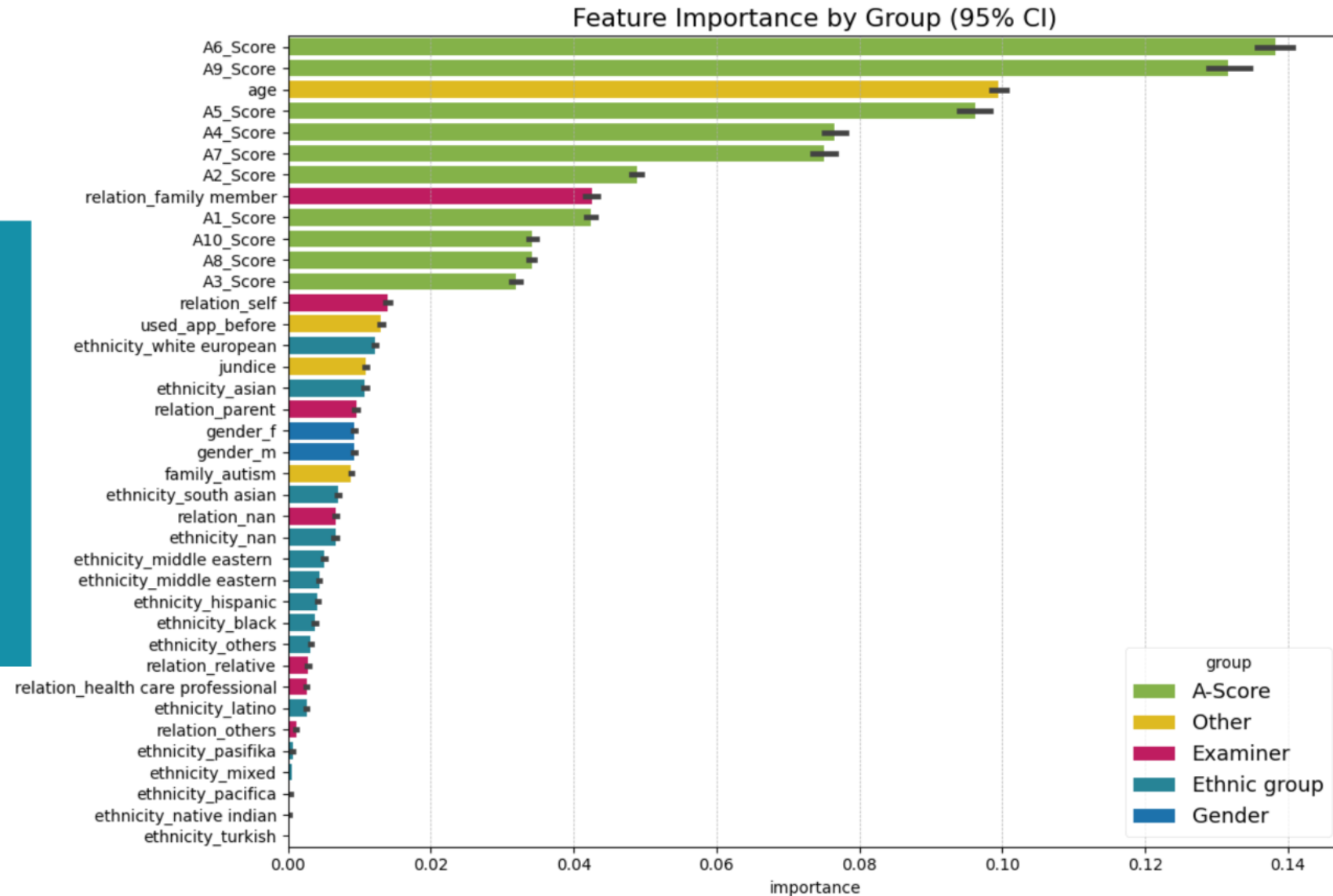


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Problems in AIAD

- Racialization & genderization of ASD
- Frameworks predicated on personhood

Access the Project!

Repo & Codebase:

<https://github.com/mindsresearch/autism-ai>

My other works:

<https://github.com/mindsresearch>

<https://orcid.org/0009-0004-1135-2025>

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