

Wooldridge, Jacob T

Project Experience:

Data Science/Research:

National Covid Cohort Collaborative (from Stony Brook): Worked with team from Stony Brook DBMI as well as others inside the enclave to develop methods to clean and harmonize data from the submitting sites. This included developing concept sets for many variables such as laboratory tests and medications, establishing unit conversion equations, and performing deep dives into the raw tables to identify sources of bad data.

Renal transplant biopsy digital analysis: Collaboration with researchers from Arkanalabs with the goal of predicting delayed graft failure based on digital analysis of the frozen biopsy of the donor kidney preimplantation.

Whole slide imaging to detect lymphoma: Implemented published model for WSI classification and trained using slides from UAMS under IRB protocol 273700. Conducted search in EHR to identify cases, pulled relevant slides, installed and set up relevant python packages for model operation, adjusted python code as needed to optimize model performance on local hardware.

Management:

Blood product utilization project (from Stony Brook): Organized the team working on this project including gathering the team, scheduling meetings, and providing updates to stakeholders throughout project.

Operations:

Blood product utilization project (from Stony Brook): Performed workflow mapping from product order through to transfusion; identified relevant order, laboratory, and clinical data for extraction; validated extracted data against patient charts; developed mock-up of potential dashboard views using python and provided preliminary data prior to handing project off to enterprise data team to build out a permanent solution (including a data warehouse and Tableau dashboard).

Immunohistochemical control slide review documentation: Developing a search strategy in Slicer-Dicer to identify cases with stains ordered and perform a free-text search of selected component fields to evaluate documentation compliance. Previously this was a manual process where only 2-3 reports per month per pathologists were reviewed.

SARS-CoV-2 sequencing : wrote python code to select representative sample of positive covid tests each week for sequencing. Bins patients by region of the state and whether or not they are immunocompromised then selects a number of patient up to the number of samples that can fit on a given number of sequencing trays. Program is run weekly and results provided to molecular lab.

Operational Consult

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- From Stony Brook – Request for reflex hepatitis B testing on dialysis patients to confirm active infection, facilitated discussion between lab and requesting team. Ultimately decided that the specific use case did not warrant new build and status quo was kept.
- Consulted to help identify best LOINC codes to report covid variant sequences to the DOH
- Consulted to help identify where to look for diagnosis of adenomas in path reports for a project evaluating adenoma detection rates on colonoscopy.

Presentations

- TRI Research Day (local) – Presented preliminary work on WSI project
- ACH fellows' day (local) – Presented preliminary work on WSI project
- AMIA CIC 2022 (national) – Presented work on path control slide documentation project
- AMIA CIC 2022 (national) – Fellow from Stonybrook is presenting the continuation of my work on the blood product utilization dashboard (I'm listed as an author)

Patient Safety and Quality Improvement:

RQUEST committee – Current project is to evaluate surgery first case on-time start rates. Reviewed data on documented reasons for delays and will focus on causes related to faculty/residents and surgical site marking. Intervention is placing laminated colored placards outside the patient room to indicate whether patient has been seen by surgery and anesthesia teams as well as having appropriate consents and other documentation.

Educational:

Courses completed:

- Computer Science for Biomedical Informatics (Stony Brook)
- Clinical Informatics (Stony Brook)
- Special Topics, combined Clinical Imaging Informatics and Research Imaging Informatics
- Clinical Data Standards
- Special Topics: Databases
- Machine learning

Conferences/workshops attended:

AMIA CIC 2022

AMIA CIC 2021 (virtual)

Association for Pathology Informatics 2021 (virtual)

Digital Pathology and AI workshop 5.0 (virtual)