

## SANJA AVRAMOVIC

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**EDUCATION:** PhD, Information Technology, George Mason University (2015)  
MS, Information Systems and Technology, University of Belgrade, Serbia (2009)  
BS, University of Belgrade, Serbia (1996)

### EXPERIENCE:

**Aug 2016 – Present**      **Assistant Professor, George Mason University**  
Taught undergrad and graduate informatics courses HAP 360, HAP 752, HAP 709, developed online course for MSHI Program, research on breast cancer, diabetes and clostridium difficile infection using big data sets, and developing an efficient and scalable algorithm for variable selection and predictions.

**2015 – Aug 2016**      **Postdoctoral Researcher, George Mason University**  
Performed analysis on big data databases provided by the Department of Veteran Affairs.

**Adjunct Professor, George Mason University**  
Taught health informatics courses in the department of Health Administration and Policy.

**2014 - 2015**      **Database Analyst, The Green Technology Group, LLC,**  
T-SQL programming and Data Mining: Assistance in data analysis of large databases. Analysis of SAS data: Translation of SAS data to SQL for use in queries. Statistical analysis using R.

**2011 - 2013**      **Graduate Research Assistant, George Mason University**  
Provided IT support for research by the Psychology Department at the George Mason University ArchLab, including: Software maintenance (SQL, PHP, Java), Moodle administration, Web tools development

### PROFESSIONAL SOCIETIES:

2016 - present      Academy Health  
2016 - present      HIMSS (Healthcare Information and Management Systems Society)

### Professional Service:

2017-present      Role/status:      **Reviewer**  
Journal:      Journal of Medical Systems

2018-present      Role/status:      **Grant Reviewer**  
Organization:      McMaster Institute for Research on Aging

### UNIVERSITY SERVICE:

2017-present	Role/status:	<b>Undergraduate Advisor</b>
	Role/status:	<b>Security Officer, Center for Discovery Science and Health Informatics</b>
2018-present	Role/status:	<b>Course Developer</b> (Wiley online program)
2017	Role/status:	Health Informatics team member, Preparation for CAHIIM Accreditation

**Patents:**

1. GMU patent (GMU-17-005) "Removing Confounding in Real World Evidence: Procedures for Outcome-Based Prescription of Antidepressants" patent (GMU-17-005)
2. xScion (2018) "Screening for Substance Abuse using Predictive Models "

**TEACHING AND MENTORSHIP: George Mason University**

**Teaching:**

1. Course: Intro to Health Information Systems  
Role: Faculty  
Direct contact hours: 3 credits  
Year taught: Spring 2016, Fall 2016, Spring 2017, Summer 2017, Fall 2017, Summer 2018
2. Course: Advanced Health Information Systems  
Role: Faculty  
Direct contact hours: 3 credits  
Year taught: Spring 2017, Fall 2018
3. Course: Health Databases  
Role: Faculty  
Direct contact hours: 3 credits  
Year taught: Fall 2017, Spring 2018, Fall 2018

**Mentorship:**

**Ph.D. Committees:**

2017 - present	Parnian Najafiborazjani, PhD candidate (VSE)
2018- present	Timothy Coffin, PhD student (CHHS)
2017 - present	Aryan Mazloum, PhD student (CHHS)

**GRA Supervision and Mentoring:**

2017- present	Student: Negin Asadzadehzanjani, GRA Dates of mentorship: Fall 2017
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2018-present	Student: Yen-Ru Shih, GTA HAP 709 Dates of mentorship: Fall 2018
2018	Student: Joo Li Lee, GTA HAP 709 Dates of mentorship: Spring 2018
2017-2018	Student: Wan Chu Wei, GRA, Diabetes Study Dates of mentorship: Fall 2017 – Spring 2018
2017	Student: Harkirat Dhillon Independent Study, Advanced Health Information Systems, Diabetes Study Dates of mentorship: Summer 2017
2016	Student: Lavanya Nirmalraj, GRA Dates of mentorship: Fall 2016

## **FUNDED RESEARCH PROJECTS**

### **GMU 222878\_116883**

05/27/2018 - 06/30/2018      Principal Investigator, Center for Applied Proteomics and Molecular Medicine GMU/ Side Out Foundation

This relational database captures a large panel of information as follow: 1) Clinical and pathological data including demographics (age at initial diagnosis, age at trial enrollment, sex), characteristics of the primary tumor, and characteristics of the metastatic lesion. 2) Multi-omic molecular information comprising of genomic data (e.g. exome sequencing data for ~600 targetable genes, fluorescent in situ hybridization (FISH) of 4 targetable genes, and RNA expression of 106 targetable transcripts) and proteomic data (e.g. immunohistochemistry quantification of 26 targetable proteins and the activation level of 26 targetable phosphoproteins measured by reverse phase protein microarray). 3) Outcome data including treatments history and time to progression on last treatment and on treatment recommended by the trial.

### **GMU 117714**

09/30/2017 - 09/29/2022      Co- Investigator, NYU/CDC, Component A: Impact of Community Factors on Geographic Disparities in Diabetes and Obesity Nationwide

The project examines the relationship between key community factors pertaining to the food and housing environment and 3 outcomes: diabetes, obesity and discordance between county-level diabetes and obesity prevalence, an approach that allows us to examine unique contextual risk factors for each condition.

### **GMU 222890**

05/25/16 - 12/31/16 Post-doctoral fellow, VA Ocean State Research Institute. Burden of Clostridium difficile infection throughout the Veterans Affairs Healthcare System.

The project's aim is to describe clinical outcomes associated with recurrent clostridium difficile infection, including mortality, hospital admission/readmission, ICU admission/readmission, length of stay, length of ICU stay, and colectomy.

#### **GMU 222764**

08/15/15 - 09/30/16 Co - Investigator, New York University. Pre-diabetes and Diabetes among Veterans

This project examines independent contribution of antibiotics, obesity, PTSD, and other risk factors to emergence of diabetes among veterans

#### **CDC Funded Projects:**

09/30/2017 – present Co- Investigator, New York University. Community Characteristics Associated with Geographic Disparities in Diabetes and Cardiometabolic Health” (DP17-001).

#### **PUBLICATIONS**

##### **Papers:**

Working paper: Alemi F, Avramovic S, Mazloun A, Elrafey A. Removing Confounding in Real World Evidence: Procedures for Outcome-Based Prescription of Antidepressants

IN PRESS: Alemi F., Avramovic S., Schwartz MD. EHR-based Screening for Substance and Prescription Abuse. Big Data. 2018 September

Davis PJ, Liu M, Sherman S, Nataranjan S, Alemi F, Jensen A, Avramovic S, Schwartz MD, Hayes, RB. HbA1c, Lipid profiles and Risk of Incident Type 2 Diabetes in United States Veterans, PloS one. 2018 September 13; 13(9):e0203484.

Avramovic S., Asadzadehzanjani, N., Mogharab Nia, R., Baldelli, E., Petricoin, E., Pierobon, M., Wojtusiak, J. The Side Out Foundation Metastatic Breast Cancer Database, an Open-access Portal for multi-omics Molecular Data and More. Reports of the Machine Learning and Inference Laboratory. MLI 18-2, 2018.

Appaneal HJ., Caffrey AR., Beganovic M., Avramovic S., LaPlante KL. Predictors of mortality among a national cohort of Veterans with recurrent Clostridium difficile infection. Open Forum Infectious Diseases. 2018 July 18;

Davis PJ., Liu M., Alemi F., Jensen A., Avramovic S., Levy E., Hayes RB., Schwartz MD. Prior antibiotic exposure and risk of type 2 diabetes among Veterans. Primary care diabetes. 2018 July 18;

Min H., Mobahi H., Vukomanovic S., Irvin K., Krasniqi I., Avramovic S., Wojtusiak J. Applying an Ontology-guided Machine Learning Methodology to the SEER-MHOS Dataset. Journal of Biomedical Semantics; 2017 September 16;8(1):39.

Tuck MG., Alemi F., Shortle JF., Avramovic S., Hesdorffer C. A Comprehensive Index for Predicting Risk of Anemia from Patients' Diagnoses. Big Data; 2017 March 1;5(1):42-52.

Min H, Avramovic S, Wojtusiak J, Khosla R, Fletcher RD, Alemi F, Elfadel Kheirbek R. A comprehensive multimorbidity index for predicting mortality in intensive care unit patients. *Journal of palliative medicine*. 2017 Jan 1;20(1):35-41.

Min H, Mobahi H, Vukomanovic S, Irvin K, Krasniqi I, Avramovic S, Wojtusiak J. Applying an Ontology-guided Machine Learning Methodology to SEER-MHOS Dataset. *Reports of the Machine Learning and Inference Laboratory. MLI*, 16-3, 2016.

Sherry L, Avramovic S. Quantifying the benefits of pre-emptive rebooking: A case study for a network carrier (JAN 12, 2012). In *Integrated Communication, Navigation, and Surveillance Conference (ICNS)*, 2015 2015 Apr 21 (pp. D2-1). IEEE.

**CONFERENCES (abstracts and posters):**

Lopez P., Lee D., Rummo P., Rosoff, S., Vinson A., Schwartz MD., Avramovic S., Alemi F., Troxel A., Ellen IG., Elbel B., Thorpe L.E, Kanchi R. Multi-Level Analysis of the Impact of Community Factors on Geographic Disparities in Diabetes and Obesity Nationwide and among U.S. Veterans, 2008-2017, *APHA's 2018 Annual Meeting & Expo (Nov. 10 - Nov. 14) (Epidemiology)* - ACCEPTED

Avramovic S., Alemi F., Asadzadehzanjani N. Association Between Infections and Alzheimer's Disease, *AMIA*, November 6, 2018 San Francisco - ACCEPTED

Baldelli E, Ghaemi S, Avramovic S, Wojtusiak J, Liotta LA, Alemi F, Petricoin EF, Dunetz B, Pierobon M. The Side-Out Foundation Metastatic Breast Cancer Database, an open-access portal for multi-omic molecular data and more, *Cancer Research* 78(13 Supplement):3290-3290, July 2018

Avramovic S., Mazloum A., Alemi F. Helping Physicians Make Better Prescription Choices, *Women Building Bio: the XX factor, INOVA, Fairfax,VA, September, 26 2017*

Avramovic S., Alemi F., Hayes RB, Levy E., Davis J., Schwartz MD. Risk of Mortality among Veterans Depends More on Comorbidities than on Glycosylated Hemoglobin Levels, *SIGM, Washington DC, April 19-22 2017*

Davis, J., Liu, M., Alemi, F., Sherman, S., Natarajan, S., Jenson, A., Avramovic S., Levy, E., Schwartz, MD., Hayes, RB. Elevated HbA1c in United States Veterans and Risk of Incident Diabetes and All-Cause Mortality, *NYCEF (New York City Epidemiology Forum), New York City, February 17th, 2017.*

Davis, J., Liu, M., Alemi, F., Sherman, S., Natarajan, S., Jenson, A., Avramovic S., Levy, E., Schwartz, MD., Hayes, RB. Elevated HbA1c in United States Veterans and Risk of Incident Diabetes and All-Cause Mortality, *SIGM, Washington DC, April 19-22 2017*

Min H., Mobahi H., Vukomanovic S., Irvin K., Krasniqi I., Avramovic S., Wojtusiak J. Applying an Ontology-guided Machine Learning Methodology to SEER-MHOS Dataset. *Intelligent Systems for Molecular Biology (ISMB)*; 2016.

Sherry L., Avramovic S. Quantifying the Benefits of Pre-emptive Rebooking: A Case Study for a Network Carrier (Jan 12, 2012). *Integrated Communications, Navigation, Surveillance (ICNS) Conference*; 2015.

Avramovic S., Min H. Developing a Real-Time Severity Index for the ICU Using a Large Clinical Data Warehouse. *Virginia Healthcare Information and Management Systems Society (HIMSS) Chapter*; 2014 November.

Sherry L., Lai K., Avramovic S., Samant A. Passenger trip reliability metrics: 2011. Integrated Communications, Navigation, Surveillance (ICNS) Conference; 2013.

**Presentations:**

Avramovic S. Association Between Infections and Alzheimer's Disease, IBI Seminar, Institute for Biohealth Innovation, George Mason University May 4th, 2018.

Avramovic S., Methodology for Simulation and Analysis of Preemptive Rebooking for Cancelled Airline Passengers. Winforms Seminar; 2015 September.