

EDUCATION

- Sep. 2017 – May. 2020 **Non-Degree** in Computer Science (GPA: 3.94) UNIVERSITY OF ILLINOIS SPRINGFIELD
Relevant coursework: Discrete Structures, Data Structures and Algorithms, Intro to Operating Systems, Computer Organization, Programming Languages, Graduate Programming Practicum
- Sep. 2016 – Aug. 2017 **B.S.** in Mathematics (GPA: 3.73) INDIANA UNIVERSITY EAST
- Jun. 2013 – May. 2015 **Non-Degree** General Studies UNIVERSITY OF MINNESOTA
Exchange student to Korea University in 2014. Transferred to Indiana University East in 2016.

EXPERIENCE

RESEARCH EXPERIENCE

- Jan. 2019 – Present **Research Volunteer** PETM @ LOYOLA UNIVERSITY MEDICAL CENTER
Built, verified and validated an SEIR model that tracks the infection status of students at schools with outbreaks of influenza and COVID-19 in R as a member of the Program for Experimental and Theoretical Modeling (PETM). Calibrated the model using genetic algorithms (*genalg* package) to observed data. Performed sensitivity analysis to ensure the results were robust and to measure the effect of policies. Prepared data, graphics, and manuscript for submission to PeerJ, which is currently under review.
- Apr. 2018 – Present **Research Volunteer** DAHARI LAB @ LOYOLA UNIVERSITY MEDICAL CENTER
Built, verified and validated agent-based model of hepatitis C virus cell-to-cell spread using AnyLogic. Collaborated with virologists to ensure accuracy of cellular kinetics within the model. Prepared data, graphics, and methods/results section of manuscript to be sent for publication Jan 2021.

INDUSTRY EXPERIENCE

- Mar. 2020 – Present **Associate Consultant** THE SHELBY GROUP
Led data integrations workstreams on Risk Assess (CRA), Contract Lifecycle Management (CLMA), and overall procure-to-pay (P2P @ Ivalua) platforms. Developed implementation strategies to ensure business requirements were met on time.
- Jun. 2016 – Mar. 2020 **Research and IT Systems Associate** FACTRIGHT, LLC
Designed, populated, and maintained firm's PostgreSQL databases and Excel spreadsheets for alternative securities products (e.g., DSTs and REITs) to support company's research and marketing efforts. Developed Power BI dashboard and associated data architecture in Amazon Web Services (AWS) to track sales and project pipelines in near real-time.

PUBLICATIONS

Authors who equally contributed to a publication are marked with a †.

JOURNAL PUBLICATIONS

1. **Burns AAC[†]**, Gutfraind A[†]. Symptom-Based Isolation Policies: Evidence from a Mathematical Model of Outbreaks of Influenza and COVID-19. *Infectious Diseases (except HIV/AIDS)*. *medRxiv*. 2020. <https://doi.org/10.1101/2020.03.26.20044750>.

WORKS IN PROGRESS

1. **Burns AAC[†]**, Cudone E[†], Durso-Cain K, et al. Modeling cell-to-cell spread of hepatitis C viral infection in vitro using agent-based modelling approach. *In Preparation*. 2020.

TALKS

INVITED TALKS

1. "Reducing influenza transmission in schools: Quantitative analysis of return-to-school policies"
Department of Family Medicine and Community Health, University of Wisconsin-Madison
2019 (Madison, WI)
2. "Lessons Learned: Computational Modeling of COVID-19"
The Shelby Group Fall Rally 2020 (Virtual)

SKILLS

TECHNIQUES

Model calibration/parameter estimation using genetic algorithms, sensitivity analysis, agent-based modeling using AnyLogic, relational databases, optimization, API development, SIR epidemic models, dashboard development

PROGRAMMING LANGUAGES

C/C++, Java, Python, R, Matlab, UNIX Shell Scripting

PLATFORMS

Windows, Linux (Debian)

REFERENCES

PROF. HAREL DAHARI, PH.D.

Research Advisor @ DahariLab

Role: **Assistant Professor**

Institution: **Division of Hepatology, Loyola University Medical Center**

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<https://ssom.luc.edu/medicine/divisionsspecialties/hepatology/.../people/hareldahari>

PROF. ALEXANDER GUTFRAIND, PH.D.

Research Advisor @ Program for Experimental and Theoretical Modeling

Role: **Adjunct Research Assistant Professor**

Institution: **Department of Public Health, University of Illinois at Chicago**

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<https://publichealth.uic.edu/profiles/alexander-gutfraind>

BRANDON RAATIKKA, J.D.

Advisor

Role: **Chief Operating Officer**

Institution: **FactRight, LLC**

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<https://www.factright.com/about-us-archive/brandon-l-raatikka-jd>