Dean M. Bisogno, Ph.D.

LinkedIn in/deanbisogno
Web elysiumanalytics.io
Contact available on request

// Advanced mathematical insight
// Passion for coding
// Cultural leadership

PROFESSIONAL EXPERIENCE

Director of Analytics, Spring 2022 - Current.
JBS USA, Greeley, CO.

- Spearhead global adoption of SaaS based data engineering and storage systems including Dataiku and Snowflake.
- Direct development and maintenance of interfaces targeting REST and SOAP APIs to automate business processes and reporting.
- Partner on design and implementation of enterprise medallion lakehouse architecture servicing 10 manufacturing business units operating 24/7.
- Direct development and maintenance of SQL and Python based automated ETL pipelines across on-premises and cloud databases.
- Advance executive strategy though developing and maintaining key relationships across 15 international businesses and shared service units.
- Manage analytics and reporting function though development of Qlik dashboards and automated report generation.
- Leverage data science and data processing skillsets to support executive decision making and legal strategy.
- In coordination with JBS DevOps, design and develop JBS's in-house HR system supporting annual performance review, KPIs, expense reporting, vacation requests, annual merit and bonus administration, and employee surveys. This system serves 280,000 team members internationally.
- Manage and administrate compensation programs aligned with business strategy for 75,000 hourly, salaried and salaried non-exempt employees.

Data Scientist II, Spring 2021 - Spring 2022.
JBS USA, Greeley, CO.

- Developed and deployed VaxTrax; the JBS system for tracking COVID-19 vaccination records for all employees. This system saves the organization approximately $100,000 annually versus a vendor product. Published in September 2021 in anticipation of US Supreme Court ruling on OSHA emergency directives. Now used as the single standard of truth for vaccination dependent compensation programs and COVID-19 risk assessment.
- Developed a graph-theoretic model of COVID-19 viral spread through processing facilities; incorporates masking policies and employee vaccination rates. Used to assess impact of new strains based on R_0 values and forecast policy efficacy.
- Developed and deployed AI models leveraging XGBoost to identify high-risk employee turnover with 70% accuracy. A 5% reduction in turnover of this group yields $1,000,000 in annual savings.
- Published an analysis of the impact that long shifts and regular task switching has on injury rates. Policies enforcing maximum hours worked and number of tasks per week reduce the number of workers' compensation claims.
- Named 2022 Innovator by JBS Center for Innovation and Technological Excellence for predictive analytics systems.

Ph.D. Candidate, Autumn 2015 - Spring 2021.
Mathematics Department, Colorado State University, Fort Collins, CO.

- Developed scripts in Python, Magma, and Gap to systematize verification of Abhyankar's Inertia Conjecture. This code was used to verify the cases presented in *Abhyankar's Inertia Conjecture for Certain Sporadic Groups*.
- Provided the first published example of a curve with vanishing Ceresa class. To prove this result our team developed a theory of group-theoretic Johnson classes and demonstrated novel methods of computation.
- Led a team of six undergraduate researchers studying supersingular Hurwitz curves. These curves are an infinite family of curves amenable to curve based cryptography. In this six week program students learned advanced topics in Number Theory, Group Theory, and how to write mathematical software in Python and Magma.
- Regularly attended and presented at research conferences nationwide.
- Taught courses on Cryptography, Group Theory, Linear Algebra, and Calculus. Awarded outstanding Graduate Teaching Assistant.

Lead Developer, Autumn 2009 - Spring 2015.
Paladin Innovators, Federal Way, WA.

- Developed and published the Paladin Remote Server; software written in C# and Python enabling live video stream production from an app.
- Developed and published the Paladin Remote App as a native Objective-C iOS app and NodeJS web app connecting to Paladin Remote server.
- Prototyped the RTSP-Operator system in NodeJS and Python which grants viewers control of live video streams.
- Maintained web servers, video streaming servers, and CDNs.
- Submitted provisional patents 14/060,838, 14/062,887, and 61/895,990 regarding the above video streaming software.

EDUCATION

Doctor of Philosophy, Mathematics. Winter 2020.
Dissertation: *Arithmetic Properties of Curves and Jacobians*
Colorado State University, Fort Collins, CO.

Master of Science, Mathematics. Spring 2018.
Thesis: *Abhyankar's Inertia Conjecture for Certain Sporadic Groups*
Colorado State University, Fort Collins, CO.

RESEARCH

Abhyankar's Inertia Conjecture for Certain Sporadic Groups. Dean Bisogno. Submitted. arXiv:2010.01455.

Group-theoretic Johnson classes and non-hyperelliptic curves with torsion Ceresa class. Dean Bisogno, Wanlin Li, Daniel Litt, Padmavathi Srinivasan. Épijournal de Géométrie Algébrique Volume 7 (2023). doi.org/10.46298/epiga.2023.volume7.6849.

The Supersingularity of Hurwitz Curves. Dean Bisogno, Erin Dawson, Henry Frauenhoff, Michael Lynch, Amethyst Price, Rachel Pries, Seamus Somerstep, Eric Work. Involve, a Journal of Mathematics 12-8 (2019). doi.org/10.2140/involve.2019.12.1293.

PROGRAMMING LANGUAGES & SOFTWARE

C#, C++, Dataiku, Docker, Flask, Git, IIS, Javascript, Magma, MongoDB, NodeJS, NumPy, Pandas, Python, PyTorch, Qlik, Redis, SQL, Visual Studio, Windows Server 2019.