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| 1102 Boylston St, Apt 2  Boston MA - 02215  Phone No: [+1-617-818-4646](tel://+1-617-818-4646/) | **Sai Nikhil Thirandas** | [saint.math.1729@gmail.com](mailto:saint.math.1729@gmail.com)  [Website: http://saint1729.me/](http://saint1729.me/)  [LinkedIn: linkedin.com/in/saint1729/](https://in.linkedin.com/in/saint1729) |

**Education**

* Northeastern University, Boston – M.S. in Applied Mathematics (Sep 2020 - Present). GPA: **3.78**
* Indian Institute of Technology, Kharagpur – B.Tech. in Civil Engg; IIT JEE AIR: **4938**; AIEEE AIR: **664**; EAMCET AIR: **985**

**Coursework**

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| **Mathematics** | Multivariate Calculus, Applied Linear Algebra, Probability & Statistics, Differential Equations |
| **Computer Science** | Machine Learning, Object-Oriented Design, Data Structures & Algorithms |

**Technical Skills**

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| **Languages** | Python, R, Java, SQL, PHP, Perl, HTML, CSS, TypeScript, Visual Basic, MATLAB, Mathematica |
| **Machine Learning** | Regression, Classification, Clustering, Dimensionality Reduction, Decision Trees, Random Forests, Bagging, Boosting, Neural Networks, Feature Engineering, Principal Component Analysis |
| **Frameworks** | Hadoop, Apache Spark, NumPy, pandas, Matplotlib, scikit-learn, SymPy, Jupyter |
| **Additional** | Git, Jenkins, JIRA, Docker, Excel, IntelliJ IDEA, PyCharm |

**Projects**

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| **Data Modeling using Markov Chain** | <http://saint1729.me/MATH7241.pdf> | **Sep 2020 – Dec 2020** |

* Performed Time Series Analysis of average runs of opening batters in baseball from years 1871 – 2015 with a Markov Chain with 9 states on the dataset (rows = 101,333) obtained from [Sean Lahman](http://www.seanlahman.com/baseball-archive/statistics/)’s website.
* Computed the limiting probability distribution. Calculated auto correlation values of original time series and a simulated time series. Observed that 0th and 1st autocorrelations of original time series have a percentage difference of 0.4 percent and 14.7 percent respectively, and gap increases as we go down the comparison table.
* Performed a Goodness of Fit Test at 5 percent significance level for two step transition of time series and predicted that states 6 and 8 are following Markov’s Principle.

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| **Predator-Prey Mathematical Modeling** | <http://saint1729.me/MATH5131.pdf> | **Jul 2020 – Aug 2020** |

* Modeled Predator (Bald Eagle) – Prey (Rodents) population growth using Lotka-Volterra equations modified with weak Allee effect and pesticide constant and obtained simulated population plots with/independent of time.
* Improved the existing model accuracy to 94 % and determined the Allee’s constant and calculated lethal limit for rodenticide usage to maintain ecological balance.

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| **Algorithm for coupled time-varying ODE** | <http://saint1729.me/IITKGP.pdf> | **Sep 2012 – Dec 2012** |

* Proposed analytical solution for solving special cases (constant coefficient, self-symmetric) for set of first order coupled time varying coefficient ordinary differential equations.
* Implemented Runge-Kutta 4th order algorithm for solving set of non-homogenous coupled time varying ODEs.

**Employment**

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| **Software Engineer II (L62)** | **Microsoft** | **Sep 2020 – Sep 2020** |

* Part of One-Note team. Just joined but didn’t work. Left job to pursue master’s to achieve long term career goal.

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| **Senior Software Engineer** | **Hitachi Vantara, Oracle, Altair Engineering** | **May 2013 – Aug 2020** |

* New features implementation and functionality enhancement in the **Agile** environment using the **TDD** approach.
* Optimized TC of duplicate rows detection algorithm from **O(n2) to O(n)**, improving runtime from 4 min to 7 sec.
* Adapted **Tesseract OCR’s** code, to increase accuracy in text-recognition for screen fonts from **50 %** to **95 %**.

**Extra Academic Activities**

* [GitHub](https://github.com/saint1729) - [HackerRank](mailto:https://www.hackerrank.com/saint1729) - [StackOverflow](https://stackoverflow.com/users/916278/sai-nikhil) - [Coursera](https://www.coursera.org/user/cec18b9a1998670a3cc03fcd51a1be8a) - [Brilliant](https://brilliant.org/profile/sai-nikhil-d213k0/about/) - [InterviewBit](https://www.interviewbit.com/profile/saint1729/)
* Contributed to an open-source organization named **SymPy** during a GSoC application.
* Ranked in the top 100 in a CodeSprint, an algorithm competition, on **HackerRank**.