

**Office of Academic Research**

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| **Details of the Research Scholar** | | | | | |
| Name | **Dhivya G** | | | Register No. | **24PDT0002** |
| Programme | **Ph.D (Deep Tech)** | School | **SBST** | Category | **IFT** |
| Topic of Research | **A study on the detection and validation of Protein-Protein Interaction Inhibitors for Cystic Fibrosis treatment using Machine Learning-driven virtual screening approach** | | | | |

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| **Details of Online Course** | | | | | | | |
| **COURSE TITLE:** | **Introduction to Machine Learning** | | | | | | |
| **CODE (If Any):** | **Credit (Common to all Online Courses)** | | **L** | | **T** | **P** | **C** |
| **2** | | **0** | **0** | **2** |
| **Name of the Instructor** | PROF. ARUN RAJKUMAR | | | | | | |
| **Name of the Institution** | Department of Computer Science  IIT Madras | | | | | | |
| **Name of the Online Platform** | NPTEL | | | | | | |
| **Online Platform Web Link** | https://nptel.ac.in/courses/106106236 | | | | | | |
| **Duration of the Course (Minimum 8 Weeks for NPTEL Platform / 30 Hours for other Online Platforms with assessment support)** | 8 Weeks | | | | | | |
| **Start Date** | 21 Jul 2025 | End Date | | 12 Sep 2025 | | | |
| **About Instructor** | | | | | | | |
| Prof.Arun Rajkumar is currently an assistant professor in the department of CSE at IIT Madras. His PhD thesis  was in the area of Machine Learning and his broad research interests are in the areas of Machine Learning,  sequential decision making. | | | | | | | |
| **Course Outline** | | | | | | | |
| A short course introducing the main ideas and algorithms of Machine Learning. The goal of the course is to cover the topics at a high level so that it would act as a first course for a full-fledged Machine Learning course. The course will be delivered in spoken Tamil while the technical terms discussed/exams/assignments will be in English.  **Course Plan**  Week 1: Basics of Linear Algebra, Probability, Optimization  Week 2: Introduction to Supervised Learning - Regression; Topics - Linear Regression; Ridge Regression; LASSO  Week 3: Supervised Learning - Classification; Topics: K-NN, Decision Tree.  Week 4: Supervised Learning - Classification; Topics: Naive Bayes.  Week 5: Supervised Learning - Logistic Regression, Perceptron.  Week 6: Supervised Learning - Support Vector Machines  Week 7: Supervised Learning - Ensemble Methods  Week 8: Unsupervised Learning - K-means Clustering, PCA | | | | | | | |
| **References** | | | | | | | |
| Deisenroth, M. P., Faisal, A. A., & Ong, C. S. (2020). Mathematics for machine learning. Cambridge University Press. | | | | | | | |

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| **Approval** | | | |
| **S.No** | **Name of the Member** | **Role** | **Signature** |
| 1 | Dr. ABILASH V G | Dean Nominee |  |
| 2 | Dr. RM. VIDHYAVATHI | External Member |  |
| 3 | Dr. C. JAYAPRAKASH | External Member |  |
| 4 | Dr. KUMAR K | Internal Member |  |
| 5 | Dr. MANOOV R | Guide |  |