

# **Abstract**

The Career Path Predictor for Engineering Students is a machine learning based system designed to help students make informed career decisions. Engineering students often face confusion while choosing a suitable career path due to limited guidance and lack of personalized insights. This project analyzes student data such as academic performance, programming skills, internship experience, certifications, project domains, and areas of interest to predict the most appropriate career option. The system uses supervised machine learning algorithms to classify students into career paths such as Software Engineer, Data Scientist, AI/ML Engineer, Cybersecurity Analyst, Cloud Engineer, QA Engineer, or Higher Studies. Data preprocessing techniques are applied to clean and encode the input features, and a Random Forest classifier is used to achieve accurate predictions. The project also provides a user-friendly web interface where students can enter their details and receive instant career recommendations. This approach enables data driven career guidance, reduces uncertainty among students, and supports better preparation for future professional roles. The system can be extended with skill gap analysis and learning recommendations for enhanced guidance.

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