INFORMATION TECHNOLOGY : AI & DATA SCIENCE

About Artificial Intelligence and Data Science

Artificial intelligence has actually become something that we usually encounter through today's technological sophistication, for example, the computer vision application on the Electronic Traffic Law Enforcement (e-tilang) system in Jakarta that uses smart cameras. In addition, there are many other things such as Natural Language Processing, Image Processing, Pattern Recognition, and many more. In today's world, data science also has a big role to predict information and generate useful insights for various fields, such as decision making in business, politics, health, etc. Committed as a university that always aligns with industry demands, Swiss German University is ready to facilitate these needs through the Information Technology - Artificial Intelligence & Data Science study program.

Why Artificial Intelligence and Data Science?

The Artificial Intelligence and Data Science Study Program at Swiss German University offers a unique and dynamic learning experience that equips new students with cutting-edge skills in two of the most rapidly evolving fields of the 21st century. With a curriculum designed by industry experts and a strong emphasis on hands-on, practical training, students gain a competitive edge in the job market. Additionally, our faculty's expertise, state-of-the-art facilities, and strong industry connections ensure that students receive a comprehensive education that bridges theory and real-world application. By choosing this program, new students can embark on a journey to become the innovators and problem solvers of tomorrow in the exciting realms of AI.

Career Prospect

The Artificial Intelligence (AI) and Data Science program offer numerous career opportunities across various industries that are continually evolving. Here are some potential career paths open to graduates of this program:

1. **Data Scientist:** Investigate and analyze data to gain business insights and make strategic decisions.
2. **Machine Learning Engineer:** Design, develop, and implement machine learning models to enhance system functionality and performance.
3. **Artificial Intelligence Engineer:** Develop applications and systems that leverage artificial intelligence to solve specific problems and tasks.
4. **Big Data Analyst:** Analyze and extract insights from large-scale data to assist organizations in making informed decisions.
5. **Business Intelligence Analyst:** Gather, analyze, and present business information to aid companies in making sound decisions.
6. **Data Engineer:** Design and manage data infrastructure to process, store, and move data on a large scale.
7. **Computer Vision Engineer:** Develop systems that enable machines to see, comprehend, and respond to images or videos.
8. **Natural Language Processing (NLP) Engineer:** Design applications that enable machines to understand and interact with human language.
9. **Quantitative Analyst:** Apply statistical and mathematical techniques to analyze and understand financial market movements.
10. **AI Product Manager:** Manage the development and implementation of AI products, from planning to launch.

International Academic Experience:

- Joint Degree Program with **Fachhochschule Südwestfalen** (approx. 7 months), or **Hochschule Albstadt-Sigmaringen** (approx. 12 months), results in earning both Sarjana Komputer (S.Kom.) and Bachelor of Engineering (B.Eng.) degrees.

- Internship program to ensure students receive global professional experience.

- Experience student exchange in several European and Asian countries.

- Accelerate Success with the **SGU-University of Missouri - Kansas City** Fast Track Program

CURRICULUM

SEMESTER 1

- English 1
- Algorithms and Object-Oriented Programming & Lab
- Data Science Programming Language
- Relational Database Design & Lab
- Discrete Mathematics
- Web Design Fundamental
- Analytical & Creative Thinking
- Statictics for Data Science
- Linux Fundamental & Computer Network
- Extracurricular Courses
- German Language and Culture 1

SEMESTER 2

- English 2
- Data Structures & Algorithms
- Server-side Web Programming
- Web Development Life Cycle Project
- Introduction to Entrepreneurship
- Ethics & Religious Philosophy
- Linear Algebra for Data Science
- Probability for Data Science
- System Admin & Maintenance
- Extracurricular Courses
- German Language and Culture 2

SEMESTER 3

- English 3
- Client-side Front-End Web Development
- Personal & Profesional Development
- Non-Relational Database Design & Lab
- Advanced Object-Oriented Programming
- Computer Security & Lab
- UI/UX Design & Evaluation
- Back-end System Administration
- Extracurricular Courses
- German Language and Culture 3

SEMESTER 4

- English 4
- Back-End Web Development & tools
- Framework-based Web Programming
- Pancasila & Civic
- Network Security & Lab
- Mobile Web Service & API (Middleware)
- Introduction to Artificial Intelligence and Laboratory
- Math for Machine Learnings
- Extracurricular Courses
- German Language and Culture 4

SEMESTER 5

JOINT DEGREE (HOCHSCHULE ALBSTADT-SIGMARINGEN)

- Social Engineering
- Introduction to Cyberpsychology
- Digital Forensics
- Offensive Security Methods
- Cyber Security Awareness and Behaviour
- IT Security Management
- Mobile and Cloud Forensics
- Extracurricular Courses
- German as Foreign Language

JOINT DEGREE (FACHHOCHSCHULE SÜDWESTFALEN)

- Internship 1

SEMESTER 6

JOINT DEGREE (HOCHSCHULE ALBSTADT-SIGMARINGEN)

- Internship 2 (6 Months)

JOINT DEGREE (FACHHOCHSCHULE SÜDWESTFALEN)

- Basics of Electrical Engineering
- Introduction to Project Management
- Model Based Design
- Internship 2 / Project-Based Learning (1,5 Months)
- Elective Subjects
- Current Developments in Business IT: Basics in Python
- Advanced Programming
- Information Systems (IS) Project

SEMESTER 7

- English 5
- Research Methodology
- Bahasa Indonesia
- Data Mining
- Native Mobile App Development & Lab
- Secure Software Development Life Cycle
- Data Science using Python
- Machine Learning & Deep Learning
- Pattern Recognition & Image Processing

OPTIONAL FOR JOINT DEGREE (FACHHOCHSCHULE SÜDWESTFALEN)

- English 5
- Research Methodology
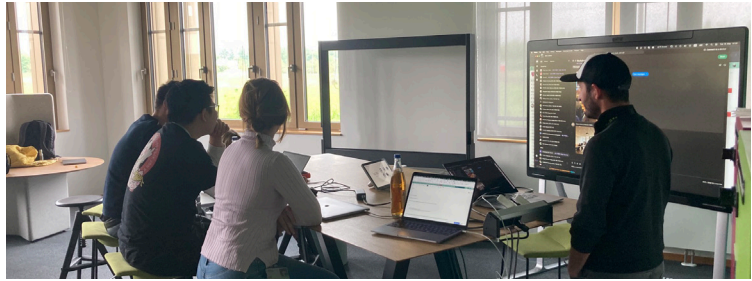- Bahasa Indonesia
- Internship in Germany

SEMESTER 8

- Thesis
- Professional Competence Assessment (PCA)
- Character and Professional Development Program (CPDP)
- Cross-Platform Mobile App Development

Alumni of the Information Technology Study Program have been accepted into top-tier firms, and the study program has established industry partnership with:

INTERNSHIP EXPERIENCES

Contact Us:
SWISS GERMAN UNIVERSITY
The Prominence Tower Alam Sutera, Jl. Jalur Sutera Bar. No.Kav 15, RT.003/RW.006,
Panunggangan Tim., Kec. Pinang, Kota Tangerang, Banten 15143

(+62) 21 2977 9596/7   (+62) 811-8010-600 (Bachelor)   (+62) 811-995-8010 (Master)   @swissgermanuniv   sgu.ac.id