Tech Roles Skills Workshop

Boston University - Kappa Theta Pi Professional Technology Fraternity

Fall 2023 Professional Development

Agenda

01
Software Engineering
Designs and creates computer systems and applications to solve real-world problems.

02
Data Analysis/Science
Reviews data to identify key insights into a business's customers and ways the data can be used to solve problems.

03
Consulting
Offers advice/expertise to client organizations to help them improve their business performance.

04
Product Management
Identifies the customers need that a product or feature will fulfill and gathers a team to turn that vision into a reality.

05
UX/UI Design
Create user-friendly interfaces that enable users to understand how to use complex technical products.

Software Engineering

Front-End Software Engineering

Technical Skills:
- HTML/CSS
    - Bootstrap
    - Tailwind
- JavaScript
- Libraries & Frameworks
    - React.js (React Native)
    - Angular.js
    - Vue.js
- Git

Interpersonal Skills:
- Creativity
- Problem Solving
- Communication
- Teamwork
- Understanding Client Experience
- Adaptability

How to Break into Front-End

- Classes
  - CS 112: Introduction to Computer Science 2
    - Data Structures and Algorithms
  - DS 280: Spark! UX/UI Design
    - User Experience and Interface Development
- Online Resources
  - W3Schools
  - LinkedIn Learning
- Projects
  - Personal Website
  - Static or Dynamic Web Pages

Back-End Software Engineering

Technical Skills:
- Core Programming Language
  - Python
  - Java
  - JavaScript
  - C++
- Back-End Framework
  - Django, Flask, FastAPI
  - Spring Boot
  - Node.js, Express.js
- Database
  - Relational
  - Non-Relational
- Git

Interpersonal Skills:
- Problem Solving
- Communication
- Teamwork
- Time Management

How to Break into Back-End

- Classes
  - CS 112: Introduction to Computer Science 2
    - Data Structures and Algorithms
  - CS 411: Software Engineering
  - EC 440: Operating Systems
  - CS 460: Introduction to Database Systems
- Online Resources
  - LinkedIn Learning
  - Youtube Tutorials
- Projects
  - Hackathons
  - Back-End for Web Pages

Full-Stack Software Engineering

- Combination of Front-End and Back-End
- Knowledge of Tech Stacks
  - Front-End Layer, Middle Layer, Database Layer
  - MERN, MEAN, MEVN
- Flexibility to work on all parts of project

Data Analysis/Science

Data Analysis

Technical Skills:
- Data Cleaning and Preparation
- Statistical Knowledge
- Creating Data Visualizations
- SQL
- Statistical Programming
  - Python, R
  - Excel

Interpersonal Skills:
- Critical Thinking
- Presentation Skills
- Written and Verbal Communication
- Problem Solving

How to Break into Data Analysis

- Classes
  - Coming soon!
- Online Resources
  - Kaggle
  - Online Tutorials for Excel, Python, SQL, R
- Projects
  - Data Scraping
  - Data Visualization
  - Lots of Data Sets Available Online!

Data Science

Technical Skills:
- Statistical Programming
  - Python, R
- Statistics Knowledge
- Data Manipulation, Analysis, and Visualization
- Machine Learning, Deep Learning, Big Data

Interpersonal Skills:
- Communication
- Structured Thinking
  - Break a problem down into multiple parts
- Problem Solving

How to Break into Data Science

- Classes
  - CS 105: Introduction to Databases and Data Mining
  - CS 112: Introduction to Computer Science 2
    - Data Structures and Algorithms
  - DS 340: Introduction to Machine Learning and AI
- Online Resources
  - Youtube Tutorials
  - Udemy
  - Towards Data Science
- Projects
  - Kaggle (Titanic - Machine Learning from Disaster)
  - Create Machine Learning Algorithms on Data Sets

UI/UX Design

UI/UX Design

Technical Skills:
- Well-Rounded Skills with Concentration in One Category

Content Strategy	Research	UX Design	Visual Design	Development
Content Hierarchy	Interviews	User Workflows	Typography	HTML
Copywriting	Personas	Information Architecture	Color Palette	CSS
Conversion Optimization	Field Studies	Wireframes	Icons	Javascript
Voice of Customer	Test Design	Prototypes	Interface Design	Python

Interpersonal Skills:
- Communication
- Teamwork
- Time Management
- Empathy
- Creative
- Attention to Detail
- Process-oriented
- Analytical

How to Break into UI/UX Design

- Classes
  - Coming soon!
- Network!
  - Have someone at a company you're interested in review your portfolio
- Projects
  - Portfolio Building
  - Design Jams
  - Freelance Work

Consulting

Consulting

Technical Skills:
- Familiarity with the field
  - Software
    - Know how full-stack applications are built and what all goes into the process of building software
  - UI/UX Design
    - Know the design process and how to work with clients to create a better design

Interpersonal Skills:
- Creative thinking
- Thinking conceptually and practically
- Problem-solving
- Communicating clearly and empathetically
- Collaboration with all job levels
- Organization and time management
- Flexibility

How to Break into Consulting

- Network!
- Showcasing your personality and being personable is key to landing a job in consulting
- Develop skills in respective technical field to have a better understanding

Product Management

Product Management

Technical Skills:
- Familiarity with Technical Aspect
  - Learn what goes into full-stack applications as well as the technologies involved
- User Experience Research and Design
  - Wireframing
  - Prototyping
  - Interviewing Users

Interpersonal Skills:
- Communication
- Business
- Research
- Analysis
- Marketing
- Delegation
- Strategic thinking
- Prioritization

How to Break into PM

- **Classes**
  - SI 839: Design Thinking and Innovation
- Projects
  - Personal Portfolio/Website
  - Build a product with your friends to solve a problem
- Follow Tech Industry News to learn Business Logic

You're all going to do amazing things!

Thank you!

Do you have any questions?

Email ktpbostonu@gmail.com for more information.