



THE UNIVERSITY OF
CHICAGO

**CAREER
ADVANCEMENT**

Guide to Career Pathways in Tech

Tech companies highly value diverse skill sets. Whether you are studying computer science, psychology, design, business, or any other field, your academic background can offer a unique advantage.

The key is to learn how to translate your strengths into the language of technology.

These roles are crucial for building, marketing, and scaling tech products, and they welcome individuals from various academic backgrounds. While there is no singular “right” path, there are numerous ways to explore and build relevant skills while you are still in school.

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Technical Roles

Software Engineer / Developer

Responsible for designing, developing, testing, and maintaining software applications and systems. Their work can span various domains including web development, mobile apps, enterprise software, and more.

Responsibilities

- Create software based on requirements and design specifications. This involves writing clean, efficient, scalable, and maintainable code.
- Perform unit testing and debugging to ensure software quality and performance.
- Contribute to design discussions and system architecture, making sure the software meets technical and functional requirements.
- Maintain and make enhancements to existing software systems, fixing bugs, and improving performance.
- Work closely with cross-functional teams including designers, product managers, and other engineers to deliver high-quality products.
- Document the code and system processes for future reference and ease of understanding for other team members.
- Participate in code reviews to ensure code quality and adherence to coding standards.
- Keep up-to-date with the latest industry trends, technologies, and best practices to continuously improve skills and knowledge.

Skills

- Proficiency in languages like Java, Python, C++, JavaScript, or others relevant to the project.
- Strong analytical and problem-solving abilities to debug and provide solutions to complex issues.
- Understanding of the SDLC including requirements gathering, design, development, testing, and deployment.
- Experience with version control systems such as Git.
- Familiarity with tools for project collaboration and communication, such as JIRA, Confluence, Slack, etc.
- Solid knowledge of algorithms and data structures for efficient coding solutions.

- Understanding of both relational and non-relational databases (e.g., SQL, NoSQL).
- Experience with relevant development frameworks such as Spring (for Java), Django (for Python), React, or Angular (for JavaScript).
- Proficiency in unit testing frameworks and techniques.
- Good communication skills, teamwork, and the ability to adapt to new challenges and changes.

Tips for success

- The field of software engineering is continually evolving with new technologies and methodologies, so a willingness to learn and adapt is crucial.
- Understanding project management principles can be useful, especially in Agile or Scrum environments.
- Consider whether you want to be a specialist in a particular domain (e.g., front-end, back-end, mobile development) or a generalist who can work across various areas.

Data Scientist / Data Analyst

Data Scientists and Data Analysts analyze and interpret complex data to help organizations make informed decisions. They use various techniques to extract insights, identify trends, and generate actionable business intelligence.

Responsibilities

- Gather data from multiple sources, including databases, APIs, and third-party datasets.
- Perform data preprocessing, cleaning, and validation to ensure data quality.
- Use statistical methods to analyze and interpret data, identifying trends and patterns.
- Create visualizations and dashboards to communicate findings to stakeholders.
- Apply machine learning algorithms to build predictive models (for Data Scientists).
- Generate reports and presentations to convey insights and recommendations to business leaders.
- Collaborate with cross-functional teams to understand data and analysis needs and objectives.

Skills

- Proficiency in statistical tools and techniques.

- Knowledge of Python, R, or SAS for data manipulation and analysis.
- Expertise in tools like Tableau, Power BI, or matplotlib.
- Strong SQL skills for querying and managing databases.
- Understanding of machine learning concepts and algorithms (for Data Scientists).
- Ability to translate data insights into business recommendations.
- Strong ability to communicate technical insights to non-technical stakeholders.

Tips for success

- Understand and adhere to ethical guidelines and data privacy regulations.
- Develop a good understanding of the industry and business context.

Machine Learning Engineer / AI Specialist

Machine Learning Engineers and AI Specialists develop and deploy machine learning models and artificial intelligence solutions to solve complex problems and automate tasks.

Responsibilities

- Build and train machine learning models using relevant algorithms and techniques.
- Collect, clean, and preprocess data for model training.
- Select appropriate machine learning algorithms based on problem requirements.
- Evaluate model performance using metrics and validation techniques.
- Deploy models into production environments and monitor their performance.
- Stay updated with the latest AI research and advancements.
- Collaborate with data scientists and software engineers to integrate models into applications.

Skills

- Proficiency in Python, R, or Java.
- Expertise in frameworks like TensorFlow, PyTorch, or scikit-learn.
- Strong understanding of statistics and probability.
- Skills in handling large datasets and data preprocessing.
- In-depth knowledge of machine learning algorithms and techniques.

Tips for success

- Continuous learning is essential due to rapid advancements in AI.
- Be aware of ethical considerations and biases in AI models.

DevOps / Site Reliability Engineer (SRE)

DevOps Engineers and Site Reliability Engineers (SRE) focus on ensuring efficient and reliable software delivery and system operations. They bridge the gap between development and operations teams to automate, monitor, and improve software development and deployment processes.

Responsibilities

- Automate software deployment, configuration management, and monitoring processes.
- Implement and maintain continuous integration and continuous delivery (CI/CD) pipelines.
- Monitor system performance, reliability, and availability using monitoring tools.
- Respond to and troubleshoot production incidents, ensuring minimal downtime.
- Manage and optimize infrastructure, including servers, networks, and cloud resources.
- Collaborate with development teams to ensure smooth and efficient software releases.
- Document processes, configurations, and best practices.

Skills

- Proficiency in tools like Jenkins, Ansible, Puppet, or Chef.
- Strong skills in scripting languages like Bash, Python, or Ruby.
- Experience with CI/CD tools and practices.
- Knowledge of cloud platforms like AWS, Azure, or Google Cloud.
- Expertise in monitoring tools like Prometheus, Grafana, or Nagios.
- Understanding of networking concepts and protocols.

Tips for success

- Prioritize automation to improve efficiency and reduce manual interventions.
- Effective collaboration with development and operations teams is crucial.
- Be prepared to handle and resolve production incidents quickly.

Cybersecurity Analyst

Cybersecurity Analysts are responsible for protecting an organization's information systems and data from cyber threats. They monitor, detect, and respond to security incidents and implement security measures.

Responsibilities

- Monitor networks and systems for security breaches and threats.
- Investigate and respond to security incidents and breaches.
- Conduct vulnerability assessments and penetration testing to identify security weaknesses.
- Develop and enforce security policies and procedures.
- Implement security measures to mitigate risks and protect sensitive data.
- Educate employees about security best practices and awareness.
- Ensure compliance with security regulations and standards.

Skills

- Proficiency in security tools like firewalls, intrusion detection systems, and antivirus software.
- Strong understanding of networking protocols and configurations.
- Experience with incident response and forensic analysis.
- Skills in identifying and assessing vulnerabilities.
- Knowledge of security regulations and standards (e.g., GDPR, HIPAA).

Tips for success

- Continuous learning is essential due to evolving cyber threats.
- Understand the ethical responsibilities of handling sensitive data.

Cloud Engineer / Infrastructure Engineer

Cloud Engineers and Infrastructure Engineers design, deploy, and manage cloud-based and on-premises infrastructure to support applications and services. They ensure scalability, reliability, and security of infrastructure.

Responsibilities

- Design and implement scalable and reliable infrastructure solutions.
- Deploy and configure cloud resources and on-premises infrastructure.
- Monitor infrastructure performance and availability.
- Automate infrastructure provisioning and management using infrastructure-as-code tools.

- Implement and maintain security measures to protect infrastructure.
- Optimize infrastructure costs through efficient resource management.
- Collaborate with development and operations teams to support application deployment.

Skills

- Proficiency in cloud platforms like AWS, Azure, or Google Cloud.
- Experience with tools like Terraform, CloudFormation, or Ansible.
- Strong understanding of networking concepts and configurations.
- Skills in scripting languages like Python, Bash, or PowerShell.
- Knowledge of security best practices and measures.
- Expertise in monitoring tools like Prometheus, Grafana, or CloudWatch.
- Ability to optimize infrastructure costs.

Tips for success

- Design infrastructure to handle scale and growth.
- Stay updated with the latest cloud technologies and best practices.

Solutions Engineer

Solutions Engineers act as technical experts who work closely with sales and customer success teams to design, present, and implement technology solutions tailored to clients' specific business needs. They bridge the gap between technical capabilities and client requirements, helping organizations considering buying a product understand how products and services can solve their challenges.

Responsibilities

- Collaborate with sales teams to understand client requirements and craft custom solutions that align with their business goals.
- Conduct technical presentations, product demonstrations, and proof-of-concept (PoC) sessions for prospective and existing clients.
- Gather and analyze technical and business requirements from clients to develop solution proposals.
- Serve as a key point of contact for technical questions and troubleshooting during the pre-sales and post-sales processes.
- Liaise with product management and engineering teams to relay client feedback and influence product enhancements.
- Create technical documentation, solution architecture diagrams, and integration guides.

- Support customers during the onboarding and implementation phases to ensure solutions are properly deployed and configured.
- Stay current with industry trends, product updates, and emerging technologies to provide informed recommendations.

Skills

- Strong technical background in software, networking, cloud platforms, or relevant technology stacks.
- Ability to understand complex business problems and map them to technical solutions.
- Excellent communication and presentation skills, capable of explaining technical concepts to non-technical stakeholders.
- Proficiency in solution architecture, systems integration, and troubleshooting.
- Familiarity with scripting languages, APIs, and software development concepts is a plus.
- Experience with CRM, sales enablement tools, and technical documentation.
- Strong project management and organizational abilities.

Tips for success

- Develop both technical acumen and business insight to bridge conversations between IT and business stakeholders.
- Practice active listening to accurately capture client needs and concerns.
- Build relationships with internal teams and clients by being responsive, resourceful, and proactive in problem-solving.
- Continually update your knowledge of new products and technologies to remain a valuable resource for clients.

QA Engineer / Test Engineer

QA Engineers and Test Engineers are responsible for ensuring the quality and reliability of software applications through testing and validation. They identify defects, validate functionality, and ensure software meets requirements.

Responsibilities

- Develop test plans and test cases based on software requirements.
- Perform manual testing to identify defects and validate functionality.
- Develop and execute automated test scripts using testing frameworks.
- Identify, document, and track defects and issues.

- Conduct regression testing to ensure new changes do not introduce new defects.
- Perform performance testing to assess software scalability and efficiency.
- Collaborate with development teams to understand requirements and provide feedback.

Skills

- Proficiency in testing tools like Selenium, JUnit, or TestNG.
- Experience with automated testing frameworks and scripting.
- Strong skills in manual testing techniques and practices.
- Expertise in defect tracking and management tools like JIRA.

Tips for success

- Continuously improve testing processes and practices.
- Provide timely feedback to development teams to address defects.

Technical Program Manager (TPM)

Technical Program Managers (TPMs) oversee and manage technical projects and programs, ensuring successful delivery within scope, time, and budget. They coordinate cross-functional teams and manage project timelines and deliverables.

Responsibilities

- Develop project plans, timelines, and schedules.
- Coordinate with cross-functional teams to ensure project alignment and progress.
- Identify and mitigate project risks and issues.
- Communicate project status and updates to stakeholders.
- Allocate resources and manage project budgets.
- Document project plans, progress, and outcomes.
- Implement best practices and continuous improvement processes.

Skills

- Proficiency in project management methodologies (e.g., Agile, Scrum, Waterfall).
- Understanding of technical concepts and ability to collaborate with technical teams.
- Skills in identifying and managing project risks.
- Ability to manage and communicate with stakeholders.

- Strong organizational and time management skills.

Tips for success

- Be adaptable to changing project requirements and priorities.
- Foster collaboration and teamwork across cross-functional teams.

Product Manager

Product Managers (PMs) are responsible for guiding the development of products from concept to launch. They work cross-functionally to ensure that the product meets market needs and business goals.

Responsibilities

- Define product vision, strategy, and roadmap.
- Conduct market research to identify customer needs and market opportunities.
- Collaborate with engineering, design, and other teams to develop the product.
- Prioritize features and enhancements based on customer feedback and business impact.
- Communicate product plans and progress to stakeholders and executives.
- Plan and execute product launches, including marketing and sales strategies.
- Monitor product performance and gather feedback to inform future improvements.

Skills

- Ability to conduct and analyze market research.
- Proficiency in project management tools and techniques.
- Ability to work effectively with cross-functional teams.
- Deep understanding of customer needs and behaviors.

Tips for success

- Be prepared to adapt to changing market dynamics and customer needs.
- Always keep the customer at the center of product decisions.
- Maintain a clear strategic vision for the product.

UX/UI Designer or Researcher

UX/UI Designers and Researchers focus on creating user-friendly and visually appealing interfaces. They conduct user research, design wireframes, and create prototypes to improve user experience.

Responsibilities

- Conduct user research to understand user needs and behaviors.
- Create wireframes and prototypes to visualize design concepts.
- Perform usability testing to gather feedback and iterate designs.
- Develop and maintain design systems and UI components.
- Work closely with product managers and engineers to implement designs.
- Design visually appealing and cohesive user interfaces.
- Create interactive elements to enhance user engagement.

Skills

- Proficiency in design tools like Sketch, Adobe XD, Figma, or InVision.
- Skills in conducting user research and usability testing.
- Ability to create wireframes and prototypes.
- Strong visual design skills and attention to detail.
- Effective communication skills to present and justify design decisions.
- Deep understanding of user-centered design principles.

Tips for success

- Prioritize user needs and feedback in design decisions.
- Foster strong collaboration with product managers and developers.

Developer Evangelist

Developer Evangelists (also known as Developer Advocates or Developer Relations) act as a bridge between a technology company and the broader software development community. Their goal is to foster strong relationships with developers by sharing knowledge, gathering feedback, and promoting the adoption of their company's products or platforms through education and advocacy.

Responsibilities

- Represent the company at conferences, meetups, webinars, and hackathons by giving talks, workshops, and live demonstrations.

- Create engaging technical content, including blog posts, tutorials, sample code, videos, and documentation to help developers learn and succeed with the company's technology.
- Engage with developer communities on social media, forums, and community platforms to answer questions and gather feedback.
- Build and nurture strong relationships with developers, partners, and open source contributors.
- Advocate for developer needs internally, relaying feedback to product and engineering teams for continuous product improvement.
- Contribute to open source projects and provide guidance on best practices.
- Stay updated on industry trends and emerging technologies to better serve and inform the community.
- Organize or participate in workshops, hackathons, and other community events.

Skills

- Strong programming experience in relevant languages and frameworks for the company's technology.
- Public speaking and technical writing abilities.
- Skills in creating educational content—videos, blogs, tutorials, or sample applications.
- Ability to build rapport with developers online and in-person.
- Active presence and engagement in developer communities (such as GitHub, Stack Overflow, or Twitter).
- Understanding of APIs, SDKs, software development life cycle, and modern development practices.
- Creativity, curiosity, and a passion for helping and educating others.

Tips for success

- Be authentic, approachable and genuinely care about helping developers succeed.
- Maintain a strong online presence by sharing knowledge and participating in conversations.
- Continuously learn new technologies to stay relevant and connected to the broader developer ecosystem.
- Gather and communicate community feedback effectively to influence product direction.

Business Roles

Talent Acquisition Recruiter / Sourcer

Technical Recruiters and Talent Sourcers are responsible for finding, attracting, and hiring top technical talent for the organization. They manage the full recruitment lifecycle from sourcing to onboarding.

Responsibilities

- Identify and source candidates through various channels (e.g., LinkedIn, job boards, networking).
- Review resumes and conduct initial interviews to assess candidate fit.
- Schedule and coordinate interviews with hiring managers.
- Manage the recruitment process, including extending offers and conducting negotiations.
- Promote the company's employer brand to attract top talent.
- Ensure a positive and seamless experience for candidates throughout the recruitment process.
- Work closely with hiring managers to understand hiring needs and requirements.

Skills

- Proficiency in sourcing tools and techniques, such as cold outreach, boolean searches, applicant tracking systems (ATS).
- Skills in conducting effective interviews and assessments.
- Ability to negotiate offers and manage candidate expectations.
- Understanding of the technical talent market and industry trends.
- Ability to build and maintain relationships with candidates and hiring managers.

Tips for success

- Prioritize creating a positive candidate experience.
- Be adaptable to changing hiring needs and market conditions.
- Maintain a strong network of potential candidates and industry contacts.
- Promote and uphold the company's employer brand.

Marketing Associate / Growth Marketing / Digital Marketing

Marketing Associates and Growth/Digital Marketers are responsible for developing and executing marketing strategies to promote products and services. They focus on driving growth, engagement, and conversions through various marketing channels.

Responsibilities

- Develop and execute marketing campaigns and strategies.
- Create and manage content for various marketing channels, including social media, email, and blogs.
- Optimize website content and structure for search engines (SEO) and manage paid search campaigns (SEM).
- Manage social media accounts and engage with the online community.
- Analyze marketing metrics and performance to measure campaign effectiveness and make data-driven decisions.
- Develop and execute email marketing campaigns to nurture leads and drive conversions.
- Work with cross-functional teams, including sales, product, and design, to support marketing initiatives.

Skills

- Proficiency in marketing tools like Google Analytics, HubSpot, or Marketo.
- Strong skills in content creation and copywriting.
- Knowledge of SEO best practices and SEM strategies.
- Experience in managing social media accounts and campaigns.
- Ability to analyze marketing metrics and make data-driven decisions.

Tips for success

- Make data-driven decisions to optimize marketing efforts.
- Understand the target audience and tailor marketing strategies accordingly.
- Maintain brand consistency across all marketing channels.

Business Analyst

Business Analysts analyze business processes, systems, and data to identify opportunities for improvement and support decision-making. They work with stakeholders to understand requirements and deliver solutions that align with business goals.

Responsibilities

- Elicit and document business requirements from stakeholders.
- Analyze data to identify trends, patterns, and insights that inform business decisions.
- Identify and recommend process improvements and efficiencies.
- Develop and present solutions that meet business requirements.
- Create detailed documentation, including business requirements, process maps, and use cases.
- Communicate findings and recommendations to stakeholders and executives.
- Support project management activities, including planning, execution, and monitoring.

Skills

- Proficiency in data analysis tools and techniques.
- Experience in gathering and documenting business requirements.
- Ability to create and analyze process maps and workflows.
- Ability to manage and communicate with stakeholders.
- Understanding of project management principles and practices.

Tips for success

- Continuously seek opportunities for process improvement.
- Develop a good understanding of the industry and business context.

Customer Success Manager / Client Solutions

Customer Success Managers (CSMs) and Client Solutions professionals ensure that customers achieve their desired outcomes and receive maximum value from the company's products and services. They focus on building strong relationships and driving customer satisfaction and retention. Titles include Customer Success Manager, Implementation Specialist, and Support Engineer.

Responsibilities

- Guide new customers through the onboarding process to ensure successful implementation.
- Provide ongoing support and address customer inquiries and issues.
- Build and maintain strong relationships with customers to drive satisfaction and loyalty.
- Manage customer accounts and identify opportunities for upselling or cross-selling.

- Monitor customer success metrics and track customer health scores.
- Gather customer feedback and provide insights to product and development teams.
- Manage contract renewals and ensure customer retention.

Skills

- Ability to build and maintain strong customer relationships.
- Deep understanding of customer needs and expectations.
- In-depth knowledge of the company's products and services.
- Ability to analyze customer data and metrics to drive decisions.

Tips for success

- Prioritize customer success and satisfaction in all interactions.
- Provide valuable feedback to product and development teams based on customer insights.
- Focus on driving customer retention and reducing churn.

Sales Development Representative (SDR) / Account Executive

Sales Development Representatives (SDRs) and Account Executives (AEs) are responsible for generating and nurturing leads, closing sales deals, and building strong relationships with customers to drive revenue growth.

Responsibilities

- Identify and qualify potential leads through various channels (e.g., cold calling, email outreach, social media, events and conferences).
- Conduct research to identify and target potential customers.
- Present and demonstrate the company's products and services to potential customers.
- Manage and maintain a sales pipeline to track progress and opportunities.
- Build and maintain relationships with customers to drive sales and retention.
- Negotiate and close sales deals, ensuring mutual value for both the company and the customer.
- Provide regular sales reports and updates to management.

Skills

- Ability to build and maintain strong customer relationships.
- Skills in conducting market research and prospecting.

- Strong negotiation and closing skills.
- Strong organizational and time management skills.
- Ability to handle rejection and stay motivated.

Tips for success

- Be persistent and resilient in pursuing leads and closing deals.
- Track and measure performance metrics to improve sales outcomes.
- Build long-term relationships with customers to drive retention and upselling.

Content Strategist / Technical Writer

Content Strategists and Technical Writers create and manage content that aligns with the company's goals and meets the needs of the target audience. They develop content for various platforms, including websites, blogs, documentation, and marketing materials.

Responsibilities

- Develop and implement content strategies that align with business goals and audience needs.
- Create high-quality content for various platforms, including blogs, articles, social media, and documentation.
- Manage and organize content repositories and ensure content is up-to-date.
- Conduct research to understand the target audience and tailor content accordingly.
- Optimize content for search engines (SEO) to improve visibility and reach.
- Develop and maintain editorial guidelines and content standards.
- Collaborate with cross-functional teams, including marketing, product, and design, to support content initiatives.

Skills

- Excellent writing and editing skills.
- Ability to develop and implement content strategies.
- Understanding of SEO best practices.
- Strong research and analytical skills.

Tips for success

- Understand the target audience and tailor content to their needs and preferences.
- Maintain consistency in content tone, style, and messaging.

- Prioritize high-quality and error-free content.

Operations / Strategy

Operations and Strategy roles at tech companies focus on improving business processes, developing strategic plans, and ensuring operational efficiency. They work to support the company's growth and long-term success.

Responsibilities

- Identify and implement process improvements to enhance operational efficiency.
- Develop and execute strategic plans to support business goals.
- Analyze data to inform decision-making and strategy development.
- Manage and oversee strategic initiatives and projects.
- Allocate resources effectively to support business objectives.
- Communicate strategic plans and updates to stakeholders.
- Implement best practices and continuous improvement processes.

Skills

- Proficiency in data analysis tools and techniques.
- Experience in project management methodologies.
- Strong problem-solving and decision-making abilities.
- Strong organizational and time management skills.
- Ability to collaborate with cross-functional teams.

Tips for success

- Prioritize operational efficiency and process improvement.
- Maintain a clear strategic vision for the company's growth and success.
- Make data-driven decisions to inform strategy and operations.
- Be adaptable to changing business needs and market conditions.
- Continuously seek opportunities for improvement and innovation.