

## AI & Machine Learning Journey

### Applied AI: Building Recommendation Systems with Python (TTAI2360)

Quick Start to Designing, Building and Deploying Scalable Recommendation Models using Python, Pandas, Pinecone and More

#### Course Snapshot

- **Course: Applied AI: Building Recommendation Systems with Python (TTAI2360)**
- **Duration:** 2 to 3 days (public courses are 2 days)
- **Audience & Skill Level:** This Intermediate level course is geared for experienced technical professionals eager to meld the capabilities of AI with the dynamism of web applications. Roles might include experienced web developers, data analysts, machine learning engineers, UX Designers and digital product managers.
- **Format / Hands-on:** This course combines engaging instructor-led presentations and practical demonstrations with hands-on programming exercises, challenge labs, use case exploration and engaging group activities. Student machines are required.
- **Flexible Delivery Options:** This course can be delivered for your team or organization **online-live (virtual), onsite in-person, self-paced** or across our immersive **blended learning experience platform (LXP)**.
- **Public Schedule:** This course is currently available on our Public Open Enrollment Schedule.
- **Customizable:** We're flexible! This course agenda, topics, labs, hours and delivery modalities can be adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

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#### Description

In today's digital landscape, recommendation systems are the driving force behind many of the personalized experiences we encounter daily. Think of the precision with which platforms like Netflix or Spotify cater content to individual tastes; that's the magic of recommendation systems in action. Our two-day intensive course, **Building Recommendation Systems using Python**, will immerse you in the captivating world of data-driven personalization.

The journey starts with a solid foundation, acquainting you with the core concepts and the varied types of recommender systems. As you delve deeper, you'll harness the robust capabilities of the Pandas library, a crucial tool for data manipulation, setting the stage for constructing both rudimentary and advanced content-based recommenders. From here, the course ventures into the intricacies of data mining techniques, allowing for a richer understanding and application of recommendation principles.

The core value of this course lies in its practical approach. Not only will you navigate the theoretical waters, but you'll also embark on a hands-on adventure with PineCone, a groundbreaking tool in the machine learning domain. This ensures a comprehensive learning experience, preparing you to craft and deploy scalable recommendation models adeptly.

Upon completing this course, you'll be well-versed in the nuances of recommendation systems, empowered with the skills to design, implement, and optimize these systems, priming you to elevate user experiences, boost customer engagement, and drive informed decisions across varied digital platforms.

#### Learning Objectives

This course combines engaging instructor-led presentations and useful demonstrations with valuable hands-on labs and engaging group activities.

Working in a hands-on learning environment, guided by our engaging AI expert you'll:

- Be able to confidently distinguish between the different types of recommendation systems.
- Master the Pandas library, equipping you to shape and prep data for your recommenders.
- Get hands-on experience building both basic and intricate content-based recommendation systems, enabling you to design systems that truly align with user needs and preferences.
- Master the world of data mining techniques, from clustering to dimensionality reduction. You'll become adept at sifting

through data to uncover those key insights.

- Explore both user-based and item-based collaborative filtering, ensuring your recommendations are spot-on.
- Be able to design recommenders, and be able to deploy them into the real world using innovative tools like PineCone.

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

### Audience

This Intermediate level course is geared for experienced technical professionals eager to meld the capabilities of AI with the dynamism of web applications. Roles might include experienced web developers, data analysts, machine learning engineers, UX Designers and digital product managers. If you're passionate about enhancing digital experiences, tailoring user interactions, or predicting online behaviors, this immersive journey into the intelligent web realm is tailor-made for you.

### Pre-Requisites

To ensure a smooth learning experience and maximize the benefits of attending this course, you should have the following prerequisite skills:

- **Basic Python Proficiency:** An understanding of Python's fundamental syntax, structures, and basic programming concepts is essential.
- **Familiarity with Basic Data Analysis:** Some exposure to elementary data analysis concepts, even if not in-depth, will be beneficial.

**Next Steps / Follow-on Courses:** We offer a wide variety of follow-on courses and learning paths for Generative AI, AI for Business, GPT, Applied AI, Azure OpenAI, Google BARD, AI for developers, testers, data analytics, machine learning, deep learning, programming, intelligent automation and many other related topics. Please see our catalog for the current **AI & Machine Learning Courses, Learning Journeys & Skills Roadmaps**, list courses and programs.

### Setup Made Simple! Learning Experience Platform (LXP)

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels and rich extended learning and post training resources are provided for you in our “easy access, no install required” online **Learning Experience Platform (LXP)**, remote lab and content environment. Access periods vary by course. We'll collaborate with you to ensure your team is set up and ready to go well in advance of the class.

### Course Topics / Agenda

*Please note that this topics, agenda and labs are subject to change to cover the most recent technical trends or tools, and may adjust during live delivery based on audience skill level, interests and participation.*

#### DAY ONE

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| <ol style="list-style-type: none"> <li><b>1. Getting Started with Recommender Systems</b> <ul style="list-style-type: none"> <li>• Technical requirements</li> <li>• What is a recommender system?</li> <li>• Types of recommender systems</li> <li>• Hands-on Activity / Lab</li> </ul> </li> <li><b>2. Manipulating Data with the Pandas Library</b> <ul style="list-style-type: none"> <li>• Technical requirements</li> <li>• Setting up the environment</li> <li>• The Pandas library</li> </ul> </li> </ol> | <ul style="list-style-type: none"> <li>• The Pandas DataFrame</li> <li>• The Pandas Series</li> <li>• Lab</li> </ul> <ol style="list-style-type: none"> <li><b>3. Building your First Recommender with Pandas</b> <ul style="list-style-type: none"> <li>• Technical requirements</li> <li>• The simple recommender</li> <li>• The knowledge-based recommender</li> <li>• Hands-on Activity / Lab</li> </ul> </li> <li><b>4. Building Content-Based Recommenders</b> <ul style="list-style-type: none"> <li>• Technical requirements</li> </ul> </li> </ol> | <ul style="list-style-type: none"> <li>• Exporting the clean DataFrame</li> <li>• Document vectors</li> <li>• The cosine similarity score</li> <li>• Plot description-based recommender</li> <li>• Metadata-based recommender</li> <li>• Suggestions for improvements</li> <li>• Hands-on Activity / Lab</li> </ul> |
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#### DAY TWO

- 5. Getting Started with Data Mining Techniques**
  - Problem statement
  - Similarity measures

- Clustering
  - Dimensionality reduction
  - Supervised learning
  - Evaluation metrics
  - Hands-on Activity / Lab
- 6. Building Collaborative Filters**
- Technical requirements
  - The framework
  - User-based collaborative filtering
  - Item-based collaborative filtering
  - Model-based approaches
  - Hands-on Activity / Lab
- 7. Using PineCone**
- Technical requirements
  - Introduction
  - Case study and project
  - Hands-on Activity / Lab

**DAY THREE or OPTIONAL CONTENT**

- 8. Deploying as a Serverless Component (OPTIONAL)**
- Technical requirements
  - Introduction
  - Deploy as a Serverless Service
- 9. Generative AI and Its Magic with GPT**
- Introduction to GPT and Generative AI
  - GPT in Recommendation Systems
  - Explore GPT's role in fine-tuning user preferences.
  - Lab
- 10. Ethical AI – Navigating the Grey Areas**
- Understanding Ethical Implications in AI
  - Grasp the moral complexities in

- recommendation systems.
  - Bias and Fairness in Recommenders
  - Dissect potential biases in AI-driven recommendations.
  - Lab
- 11. Job Aids Using Generative AI**
- Introduction to AI-Powered Job Aids
  - Understand how GPT can aid daily tasks.
  - Applications in Data Processing and Analysis
  - Learn GPT's role in data analytics enhancements.
  - Lab

**For More Information**

For more information about our training services (instructor-led, self-paced or blended), collaborative coaching services, robust Learning Experience Platform (LXP), Career Experiences, public course schedule, partner programs, courseware licensing options or to see our complete list of course offerings, solutions and special offers, please visit us at [www.triveratech.com](http://www.triveratech.com), email [Info@triveratech.com](mailto:Info@triveratech.com) or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

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