Artificial Intelligence 201

BEYOND WRITING EMAILS

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J. Langley,
Founder, Huntsville AI
CTO, CohesionForce, Inc
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INTRODUCTION TO J. LANGLEY

What I do:
- Chief Technical Officer - CohesionForce, Inc
- Founder - Huntsville AI
- AI Huntsville - Workforce Development Committee
- Captain - Keel Mountain Volunteer Fire Department

I've been working with AI since around 2005, with my master's project at Florida Institute of Technology being an NLP based system for recommending web forum channels that best match a user's question.

I believe that the best way to ensure that AI is used for the greater good is to involve the greatest number of perspectives possible in its development, testing, and use.

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LEVELS OF AI ADOPTION

1. Using AI without knowing it - Email spam filter, map navigation, voice recognition, social media feeds
2. Actively using AI - ChatGPT, Copilot, other tools we'll cover in a moment
3. Building AI Tools - Incorporating AI tools into products, training custom AI models, applying AI in new domains
4. Designing new AI models or approaches - Understanding how current AI models work, creating new AI models

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AI TECHNIQUES

1. Natural Language Processing - Classification, Summarization, Generation
2. Computer Vision - Classification, Segmentation, Enhancement, Generation
3. Audio Processing - Recognition, Classification, Generation
4. Reinforcement Learning - Autonomous Vehicles, Robotics, Optimization
5. Recommendation Systems - Collaborative Filtering, Content Based, Implicit
6. **Generative AI - Text, Images, Audio, Video**
7. Agentic AI - Tool Calling, Decision Making
8. Robotics - Humanoid Robots, Autonomous Drones, Self Driving Cars

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GENERATIVE AI

Technical Limitations
- Plagiarism and Copyright Issues - Generated content may inadvertently copy from the training data, raising intellectual property concerns.
- Misinformation and Deepfakes - Generative AI can create highly convincing fake text, images, videos, and audio, making it easier to spread misinformation.
- Coherence in Long Outputs - Struggles to maintain coherence in long or complex narratives.

Cultural/Ethical Limitations
- Alignment to cultural norms
- Misuse by bad actors

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