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Research on what Gen AI does for professional services.

E-CREDA

Dec 2024

UCL – Gen AI in real estate team

Associate Professor - Economics

Director of the Bartlett Real Estate

World's top-ranked faculty of built environment since 2023

Previously:
- London School of Economics
- Cambridge University

"We won't be displaced by AI itself, but by those who effectively utilize AI."

DR NIKODEM SZUMILO

Managing director of Schroders
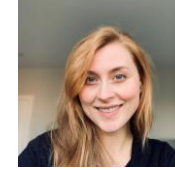
Real estate industry since 1999:
- consultancy,
- corporate finance
- investment/asset mgmt.

Honorary Professor at UCL

Harvard Real Estate Alumni Board

"With the transformative potential of AI in real estate, training is crucial to harness its capabilities effectively. "

DR THOMAS WIEGELMANN FRICS

Lecturer UCL – Physics

Fellow of the Higher Education Academy

AI Engineer

Previously:
Imperial College London
Cambridge University

"Despite a certain mystery surrounding it, AI is just a tool – a very powerful tool. Use it to your advantage."

DR MONIKA SZUMILO

Generative AI is an unusual technology:

- unpredictable

- unexpected effects

- general use

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My favorite papers

1. **Kevin Zheyuan Cui et al., 2024**. *The Effects of Generative AI on High-Skilled Work: Evidence from Three Field Experiments*. Microsoft, Accenture, and Fortune 100 Electronics Manufacturing Company.

2. **Alex G. Kim, Maximilian Muhn, & Valeri V. Nikolaev, 2024**. *Financial Statement Analysis with Large Language Models*. University of Chicago, Booth School of Business.

3. **Erik Brynjolfsson, Danielle Li, & Lindsey R. Raymond, 2023**. *Generative AI at Work*. National Bureau of Economic Research (NBER).

4. **Pham Hoang Van & Scott Cunningham, 2024**. *Can Base ChatGPT be Used for Forecasting without Additional Optimization?* Baylor University.

Key messages:

- 1. Gen AI helps with professional service work.
- 2. Prompting maters.
- 3. Juniors benefit more than seniors.
- 4. Public models can be as good as specialized ones

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Effects of Generative AI on High-Skilled Work: Evidence from Three Field Experiments

- Field experiments with 4,867 developers at Microsoft, Accenture, and a Fortune 100 firm assessed AI's impact.

- Randomized access to GitHub Copilot, a coding assistant offering intelligent code completions.

- Tracked task completion rates, code commits, and compilations to determine productivity changes.

- Focused on understanding adoption among developers with varying levels of experience and the impact on task efficiency.
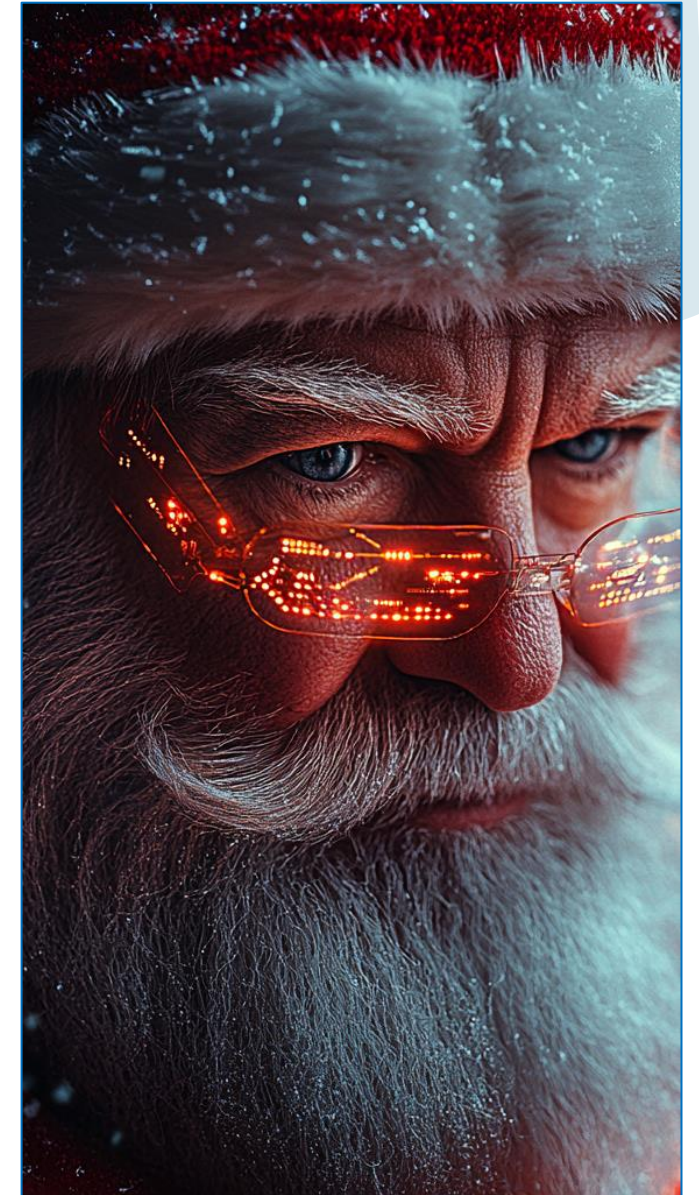
Effects of Generative AI on High-Skilled Work: Evidence from Three Field Experiments

Findings

- Productivty increased by **26%** overall, with **junior developers** showing the greatest improvement.

- Copilot users reported **reduced cognitive load** and **faster adaptation** to new tasks or coding challenges.

Implications:

- Generative AI tools can bridge skill gaps, offering meaningful **support to junior** and less experienced team members.

- Organizations can **enhance software development efficiency** by integrating such tools into their development workflows.

Financial Statement Analysis with LLMs

- Tested GPT-4 on **anonymized financial statements** to assess its ability to analyze data numerically.

- Excluded narrative or industry-specific context to isolate **numeric reasoning capabilities**.

- Used a dataset of 150,678 firm-year observations to **predict earnings direction** and benchmarked results against human analysts and ML models.

- Incorporated chain-of-thought reasoning prompts to emulate the step-by-step analysis performed by professional analysts.

Financial Statement Analysis with Large Language Models

Findings

- GPT-4 outperformed human analysts with **60% accuracy**, particularly in cases with ambiguous or complex data patterns.

- Demonstrated analytical capacity comparable to state-of-the-art ML models, revealing **potential for financial application**.

Implications:

- LLMs can **complement financial analysts** by providing data-driven insights that enhance decision-making processes.

- This technology could revolutionize corporate finance, risk assessment, and **investment strategies**.

Generative AI at Work (customer support)

- Evaluated generative AI's impact on 5,179 **customer support agents** in real-world conditions.

- AI assistant provided real-time **conversational guidance**, helping agents manage customer interactions more effectively.

- **Staggered deployment** allowed comparison between AI-augmented and non-augmented workers.

- Metrics included **productivity** (issues resolved per hour), customer **satisfaction**, and **employee retention** over time.

Generative AI at Work (customer support)

Findings

- **Productivity increased** by 14% overall, with a notable 34% improvement for novice agents who benefited most from AI guidance.
- **Customer satisfaction improved** as evidenced by better sentiment scores and fewer escalations, while employee **attrition decreased significantly**.

Implications:

- Generative AI tools **standardize quality** and **reduce barriers for novice workers** to achieve high productivity quickly.
- Businesses can use such tools to **retain employees and enhance operational efficiency** while maintaining high customer service standards.

Can Base ChatGPT be Used for Forecasting without Additional Optimization?

Evaluated ChatGPT-3.5 & 4 for forecasting abilities using two approaches:

- **Direct Prediction**: Straightforward queries asking about specific future events.
- **Narrative Prompts**: Fictional storytelling where events were creatively inferred.

- Focused on forecasting 2022 events, **leveraging GPT's training cutoff** in September 2021 to isolate predictions from hallucinations.

- Included predictions for Academy Awards winners and economic trends **using 100 prompts with diverse narrative** setups like Jerome Powell's speeches.

Can Base ChatGPT be Used for Forecasting without Additional Optimization?

Findings:

- **Narrative prompts enhanced predictive accuracy** significantly over direct queries, with GPT-4 performing better.
- While predictions were often accurate in creative contexts, **some events were too ambiguous or broad to predict reliably**.

Implications:

- Narrative prompting allows professionals to **extract nuanced insights** from LLMs when facts are not straightforward.
- This method can **support strategic forecasting** in economics, media, and policy analysis.

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Insights from 2 years of work

— Presented to over 4,000

— Trained over 400 people

— 11 consulting projects

Key concerns:
- Data security
- Lack of infrastructure
- Lack of training

Key benefits:
- Individuals not firms
- Efficiency gains
- Troubleshooting
- Learning

Underrated use cases:

❑ Strategy

❑ Negotiations

❑ Analysis/research

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UCL THE BARTLETT REAL ESTATE INSTITUTE

Niko Szumilo

www.vari-kp.com

info@vari-kp.com

THANK YOU