

EAA Web Session

Build LLM Inference in Excel: Advanced Excel to Demystify GPTs

24 & 27 April 2026 | 9:00-12:30 CEST | online

Introduction

Microsoft Excel has been the crux and delight of the actuarial profession for at least the last 20 years. Notwithstanding its numerous design flaws, recent updates have breathed new life into this tool, making it capable of building algorithms that were simply previously unthinkable. At the same time, as actuaries, we have seen in the last 10 years the profession slide from a position of technical leadership, with the rise of data science first and AI now, falling down in the trap of the myth of the Black box model, a slight euphemism for intellectual laziness. The main aim of this course is to dispel this myth by showing that every actuary is perfectly capable to build and then understand how a GPT works just using Excel without any Python or VBA.

Given the density and breadth of the material the session will be split across two days, in the first one we will introduce some theoretical concepts from computational and information theory which we will then see applied in Excel, whereas in the second one we will present a simple GPT architecture (OpenAI GPT-2) which we will partially rebuild in Excel. The sessions are structured to minimise theory to the bare necessary and have plenty of interactive polls and hands-on Excel exercises.

Participants

- Actuaries and non-actuaries with
 - o Strong foundation in Excel (assumed knowledge of LOOKUPS, MATCH, OFFSET, named ranges, arrays)
 - o General knowledge of what is an LLM from practical usage, interest further knowledge on how an LLM works under the hood
- It is beneficial to have some experience with functional programming languages (such as R, MATLAB, Mathematica, LISP etc) but not strictly necessary, since this will be covered in the web session

Purpose and Nature

The web session has two main aims:

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1. Introduce the audience to the set of functional programming functions introduced in Excel 2024 (LAMBDA, LET, MAP, REDUCE, etc) and show how they can be used in practice to create algorithms previously out of Excel reach, such as loops, algorithms in more than 2 dimensions and recursion
2. Explain how an LLM works under the hood by rebuilding a simple example step by step in Excel

By the end of the course, participants will:

- understand how to exploit the new functionalities included in Microsoft Excel to create the sort of algorithms that would have required VBA or another programming language
- understand how GPTs are internally structured, how they parse text into numbers, why the text they generate is stochastic, what are their inherent limitation and where the computational hurdles arise

Language

The language of the web session will be English.

Lecturer(s)

Giacomo Maugeri

FIA & CERA freelance actuary based in Switzerland focusing on holistic risk modelling, AI automation and data-driven decision making. Giacomo has a long story as an actuarial trainer, starting from his role at Ultimate Risk Solutions, where he was in charge of running EMEA actuarial software training on Reinsurance Pricing, Solvency II, IFRS17 and Reserving, to his last role as head of EY Malta actuarial services, where he had been invited to hold internal seminars on modelling in London. Giacomo holds an MSC in Actuarial Science from Bayes Business School (formerly known as Cass) and is an experienced modeller covering personal lines pricing optimisation, reinsurance structuring, capital modelling and individual reserving. As a volunteer member of the IFoA *Programming for Actuarial Work* working party he wrote the chapter on algorithms for the e-book *Introduction to programming for actuaries*.

Preliminary Programme

Friday, 24 April 2026

09:00-09:30	Theoretical introduction - Difference between LLMs and GPTs - Lambda Calculus - Tokenisation
09:30-10:30	Excel demonstration: introducing LAMBDA, LET, MAP e REDUCE
10:30-11:00	Break
11:00-12:30	Building a Byte-paired tokenisation algorithm in Excel

Monday, 27 April 2026

09:00-09:30	Theoretical introduction
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	- GPT-2 architecture - Multi-head Attention and masking - How GPTs generate output
09:30-10:30	Building a Masked Multi-head attention mechanism in Excel
10:30-11:00	Break
11:00-12:30	GPT parameters in Excel: temperature and token selection

All the above times are given in CEST (Central European Summer Time).

Fees & Registration

Early Bird Registration Fee (until 13 March 2026):

- For private customers in the EU: €480.00 + VAT of the billing country (example Germany: €571.20 incl. 19% VAT)
- For private customers outside the EU: €571.20 (incl. 19% VAT)
- For businesses within the EU (excl. Germany, with valid VAT ID): €480.00 (net, reverse charge applies)
- For businesses in Germany: €571.20 (incl. 19% VAT)

Regular Registration Fee (from 14 March 2026):

- For private customers in the EU: €630.00 + VAT of the billing country (example Germany: €749.70 incl. 19% VAT)
- For private customers outside the EU: €749.70 (incl. 19% VAT)
- For businesses within the EU (excl. Germany, with valid VAT ID): €630.00 (net, reverse charge applies)
- For businesses in Germany: €749.70 (incl. 19% VAT)

Important VAT Information:

- For private customers with a billing address in an EU country: VAT will be charged at the applicable rate in the country of the billing address. The final amount, including VAT, will be calculated upon invoicing.
- For customers with a non-EU (third country) billing address: Only a non-company billing address is accepted for VAT compliance reasons. 19% VAT applies to all non-EU private customers.
- For businesses within the EU (excluding Germany), Iceland, Liechtenstein, Norway, Switzerland, and the UK with a valid VAT ID: The reverse charge mechanism applies (net price; VAT will not be charged). Please ensure your valid VAT ID is entered correctly during registration.
- For all customers with a billing address in Germany: 19% VAT applies.

Please submit your registration using this online [booking form](#). Closer to the event, you will receive further login details to join the web session.

Your registration is binding. Cancellation is only possible up to 2 weeks before the first day of the event. If you cancel later, the full participation fee is due. You may appoint someone to take your place but must notify us in advance. EAA has the right to cancel the event if the minimum number of participants is not reached.

We will send you an invoice via email. Please allow a few days for handling. Please always give your invoice number when you effect payment. All bank charges are to be borne by the participant.

Registration is open until two working days before the web session. If registration has already been closed for this web session, please call us or send an email to contact@actuarial-academy.com in order to find out whether a late registration is still possible.

Technical Requirements

Participants should have access to a recent version of Excel (Excel 2024 included in Office 365 or Office 2024, or the free Excel for web).

Before the event, participants will be provided with several Excel files that will be used for the interactive exercises during the session.

Please check with your IT department if your firewall and computer settings support web session participation (the programme Zoom will be used for this online training). Please also make sure to join the web session with a stable internet connection.

CPD

For this web session, the following CPD credits are available under the CPD scheme of the relevant national actuarial association:

Austria:	6 points
Belgium:	6 points
Bulgaria:	8 points
Croatia:	individual accreditation
Czechia:	6 hours
Denmark:	6 credits
Estonia:	6 hours
Finland:	5 points
France:	36 points
Germany:	6 hours
Greece:	8 points
Hungary:	6 hours
Iceland:	6 credits
Ireland:	6 hours
Italy:	individual accreditation
Latvia:	6 hours
Lithuania:	6 hours
Netherlands:	approx. 6 points (individual accreditation)
Norway:	6 points
Poland:	6 hours

Portugal:	6 hours
Serbia:	5 hours
Slovakia:	individual accreditation
Slovenia:	individual accreditation
Spain:	CAC: 6 hours, IAE: 6 hours
Switzerland:	individual accreditation
USA:	SOA (Section B): up to 7.2 hours

No responsibility is taken for the accuracy of this information.