

Building trust in AI

to deliver improved clinical outcomes

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AI can improve clinical outcomes



Clinical value

- Application of AI in health setting
- Improved outcomes for patients



Secure Foundation

- Security by design, with rigorous controls
- Regulatory compliance



Trusted Algorithms

- Iterative design and monitoring
- Transparent predictions



Support and Buy-In

- Agreed outcomes with all stakeholders
- Fit with existing process

AI in practice: improving sepsis prediction for intensive-care patients.



A **multidisciplinary team of machine learning and critical care experts** from Emory have recently demonstrated that an Artificial Intelligence Sepsis Expert (AISE) algorithm trained on electronic medical record (EMR) data from over 30,000 patients from the Emory Healthcare system, and validated on an independent cohort of 50,000 patients from the MIMIC-III ICU database, can reliably predict new sepsis in the ICU (defined using an automated approach based on sepsis-3, the most recent consensus of sepsis [Singer et al., JAMA 2016]), **4-6 hours in advance**, with an area under the curve (**ROC**) of **0.85** [Nemati et al., PMID 29286945].

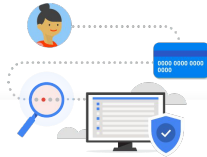
Control data access and storage to minimise risk



Data Residency

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Store your data in the locations you select



Assured Workloads

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Prevent deployments outside selected geo boundaries and limit access by Google support



Access Transparency

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Audit Google's access to your data and require explicit approval for support access



Cryptographic Control

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Store and manage encryption keys outside Google cloud















Confidential Computing

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Preserve the confidentiality of your data while it is being processed

Compliance with regulatory requirements

 <p>Global</p> <ul style="list-style-type: none"> ISO 27001 ISO 27017 ISO 27018 SOC 1 SOC 2 SOC 3 PCI DSS CSA STAR MPAA GxP Independent Security Evaluators Audit 	 <p>USA</p> <ul style="list-style-type: none"> HIPAA HiTrust FedRAMP FIPS 140-2 COPPA FERPA NIST 800-53 NIST 800-171 Sarbanes- Oxley SEC Rule 17a-4(f) CFTC Rule 1.31(c)-(d) FINRA Rule 4511(c) 	 <p>Canada</p> <ul style="list-style-type: none"> Personal Information & Electronic Documents Act  <p>Argentina</p> <ul style="list-style-type: none"> Personal Data Protection Law 	 <p>Europe</p> <ul style="list-style-type: none"> GDPR SCCs  <p>Spain</p> <ul style="list-style-type: none"> Esquema Nacional de Seguridad  <p>South Africa</p> <ul style="list-style-type: none"> POPI 	 <p>Germany</p> <ul style="list-style-type: none"> BSI C5  <p>UK</p> <ul style="list-style-type: none"> NCSC Cloud Security Principles NCSC Cyber Essentials NHS DSPT FCA FG16/5 FCA SYSC 8 PRA SS2/21 	 <p>Australia</p> <ul style="list-style-type: none"> Australian Privacy Principles Australian Prudential Regulatory Authority Standards IRAP 	 <p>Japan</p> <ul style="list-style-type: none"> FISC My Number Act  <p>Singapore</p> <ul style="list-style-type: none"> MTCS Tier 3
	Americas		Europe, Middle East & Africa		Asia Pacific	



The algorithm opens up the deep-learning black box and informs the physician why it thinks the patient is at risk.”

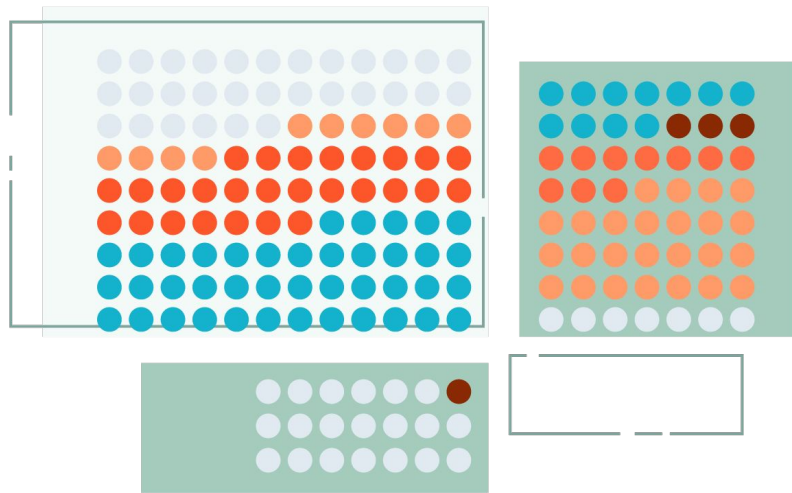
Ashish Sharma

Assistant Professor, Emory University

Understanding AI output and building trust

Explainable AI is a set of tools to help understand and interpret predictions. You can debug and improve model performance, and help others understand your models' behavior.

AI Explanations help improve datasets or model architecture and debug model performance. The **What-If Tool** lets you investigate model behavior.



Building confidence with project sponsors and users

- Agreed metrics and measure of value
- Understanding of existing processes and dependencies
- Rigorous testing
- Identify and align with stakeholders





Thank you.