AI security threats and controls navigator at OWASP AI Exchange - owaspai.org

1. General controls:

Governance:
- AIPROGRAM
- SECPROGRAM
- SECDEVPROGRAM
- DEVPROGRAM
- CHECKCOMPLIANCE
- SECEDUCATE

Sensitive data limitation:
- DATAMINIMIZE
- ALLOWEDDATA
- SHORTRETAIN
- OBFUSCATETRAININGDATA
- DISCRETE

Limit effect of unwanted behaviour:
- OVERSIGHT
- MINMODELPRIVILEGE
- AITRANSPARENCY
- CONTINUOUSVALIDATION
- EXPLAINABILITY
- UNWANTEDBIASTESTING

LEGEND:
- Standard information security control (with attention points)
- Runtime Datascience control
- Development-time Datascience control

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2. Controls against threats through runtime use:

Always:
- MONITORUSE
- RATELIMIT
- MODELACCESSCONTROL

Integrity of model behaviour

2.1 Against evasion:
- See Always
- DETECTODDINPUT
- DETECTADVERSARIALINPUT
- EVASIONROBUSTMODEL
- TRAINADVERSARIAL
- INPUTDISTORTION
- ADVERSARIALROBUSTDISTILLATION

Confidentiality of data

2.2 Against data disclosure by use:

Against data disclosure by model:
- See always
- FILTERSENSITIVETRAINDATA
- FILTERSENSITIVEMODELOUTPUT

Against model inversion and membership inference:
- See always
- OBSCURECONFIDENCE
- SMALLMODEL
- ADDTRAINNOISE

Confidentiality of intellectual property

2.3 Against model theft by use:
- See always

Availability of model

2.4 Against failure by use:
- See always
- DOSINPUTVALIDATION
- LIMITRESOURCES

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3. Controls against development-time threats:

Always:
- DEVDATAPROTECT
- DEVSECURITY
- SEGREGATEDATA
- CONFCOMPUTE
- FEDERATIVELEARNING
- SUPPLYCHAINMANAGE

Integrity of model behaviour

3.1 Against broad model poisoning:
- See Always
- MODELENSEMBLE

Against data poisoning:
- See always
- MORETRAINDATA
- DATAQUALITYCONTROL
- TRAINDATADISTORTION
- POISONROBUSTMODEL

Against dev-time model poisoning:
- See always

Against transfer learning attacks:
- See always

Confidentiality of data / ip

3.2 Against data leak development-time:

Against Train/test data leak:
- See Always

Against dev-time model leak:
- See Always

Against source code/config leak:
- See Always

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4. Runtime application security controls:

All CIA risks

4.1 Against non AI-specific application security threats:
- Technical appsec controls
- Operational security

Integrity of model behaviour

4.2 Against runtime model poisoning:
- RUNTIMEMODELINTEGRITY
- RUNTIMEMODELIOINTEGRITY

Confidentiality of intellectual property

4.3 Against runtime model theft:
- RUNTIMEMODELCONFIDENTIALITY
- MODELOBFUSCATION

CIA risks through injection

4.4 Against insecure output handling:
- ENCODEMODELOUTPUT

Integrity of model behaviour

4.5 Against direct prompt injection:
- Embedded in the model

Integrity of model behaviour

4.6 Against indirect prompt injection:
- PROMPTINPUTVALIDATION
- INPUTSEGREGATION

Confidentiality of data

4.7 Against leaking input data:
- MODELINPUTCONFIDENTIALITY

Threat model based on Software Improvement Group AI framework