PROJECT : CRYSTALLOMANCY

R&D ENCOMPASSING APPLIED MACHINE LEARNING

Ops Overview/Goals

Primary Goals / MVPs / Deliverables

- **Conversational Agents (i.e. 'Chatbots)** which realize some degree of NLP and some features of Fëa (e.g. memory retention/recall, opinion/perspectives, personality, mood, etc.)
- **Decent command (at least via theory) of [PC]Generative ML architectures** (e.g. Style-GAN, Terrain-GAN, Wonka's use for PCG applications, stuff in '2 Minute Papers', etc.)
- **Determine feasibility/possibility of utilization for 'Greater Fëa' and 'Greater Genesis'** (i.e. semi-sentient agents and 'Multi-Level Multi-Content PCG', respectively).
- **Bottom-Line MVP: Fairly improved command of ML and RL** WRT both theory-side and (some) application/implementation experience; for both R&D and employment ops.

Primary 'Summits' / 'Rally Points'

- **Conversational / NLP-Capable Agents** (with goals of far-future utilization within 'Greater Fëa' - for Virtual and Embodied Agents)
- **Learning-Driven Reactive/Interactive Agents** (also applicable for Fëa and variety of other AI ops/projects involving agents)
- **Reinforcement Learning Agents** [Applied] (not explicitly ML but damn applicable and certainly an element of AI Ops in any case)
- **Procedural Workflows via AI/ML** (related somewhat to Genesis, especially precedent in use of AI and agents for PCG)
- **Generative Adversarial Networks** (especially WRT to content generators i.e. terrain, images, models, etc.)

Links Dump (Videos and Course Pages)

Course Websites

ID	NAME	SEM-YR	LINK	STATUS	NOTES
Carlos CSC-665	Prin. of ML	SP-19	[link]	Pending	Uses Daume Text (see below Note)
Clay ML Links	Misc. ML Links	N/A	[link]	NAT	Lots of good links, should fully skim them
CMU CS 10-601	Intro to ML	SP-20	[link]	Inactive	Unexplored, do give it a look; however NOTE: Uses Daume Text
Berkeley CS-188	Intro to AI	SU-21	[link]	Active	Using only for RL Topic else as supplement for ML topics

- **Daume Text (i.e. CIML)** has several errors and missing content discovered throughout CSC-665, of which some else all persist A/O last visit ~2021; per neither CIML website nor its repo indicating revision. Ergo it's still iffy, despite CMU 10-601 utilizing it and Carlos' Intro ML courses still using it a/o 2022.

YouTube Video (Series) Links

ID / CREATOR	TYPE	TITLE	LINK	STATUS	NOTES
CMU CS 10-601	Lecture Series	Intro ML	[link]	Pending	Saw first few mins of Lecture-1 Video
Dmitry Kobak	Lecture Series	Intro ML	[link]	Suspended	Jumps into Linear Regression too quick for [re]intro

Textbooks

TITLE / ID	LOCATION	STATUS
'Mathematics For Machine Learning'	`/Mathematics`	
Linear Algebra Done Right (2015)	`/Mathematics`	
'Intro Reinforcement Learning' 2nd Ed (Sutton Text)	`/Machine Learning and Applications`	PDF [55/548]
'Elements Of Statistical Learning' 2nd Ed	`/Machine Learning and Applications`	
Intro To Statistical Learning (Gareth Text)	`/Machine Learning and Applications`	
'Intro To Info Retrieval' (Manning Text)	`/Machine Learning and Applications`	Mihai course textbook
Neural Networks and Deep Learning	(`Website EBook Link`)	Completed read-thru