Facebook to launch NetHack Challenge at NeurIPS 2021

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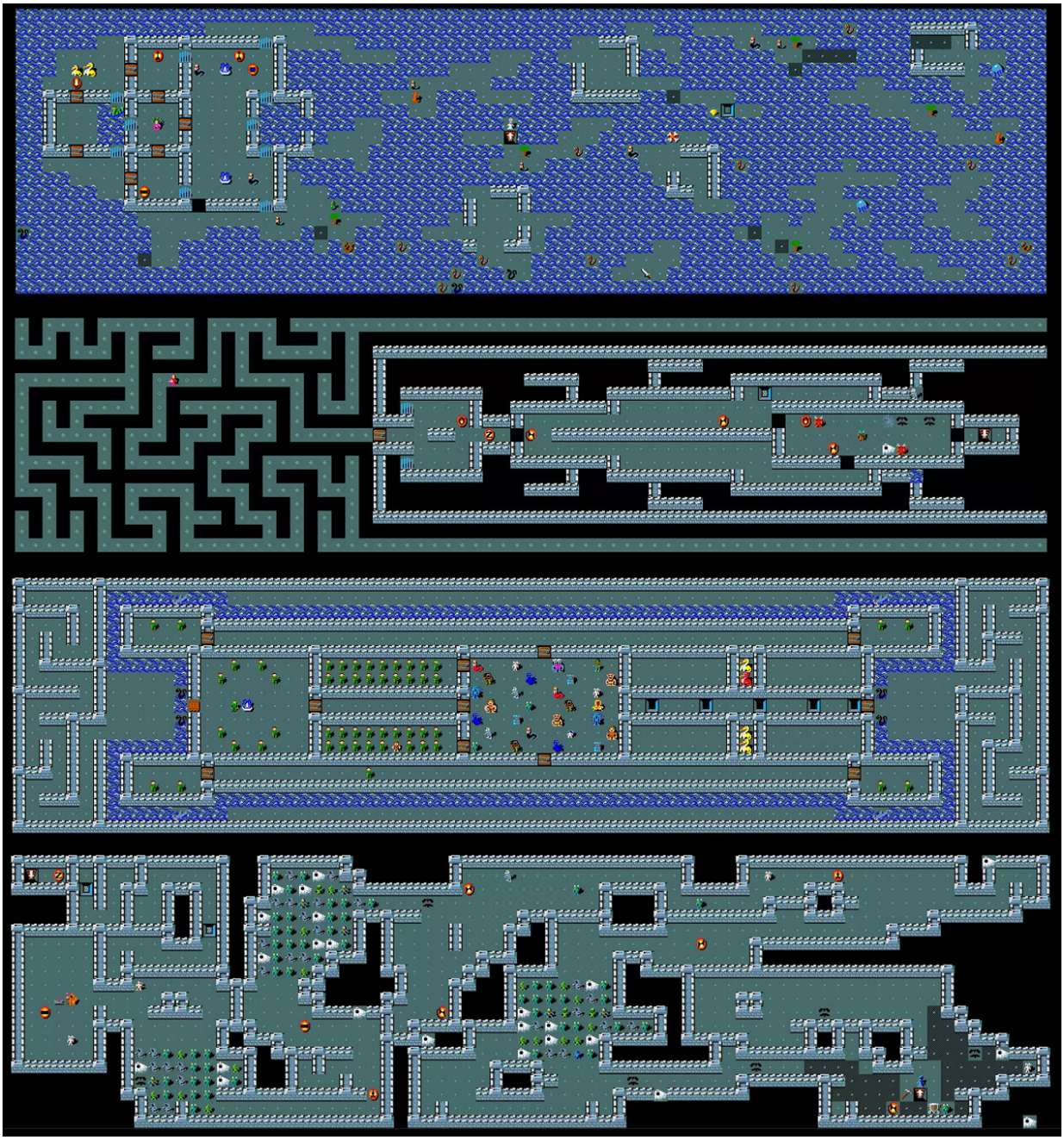

NetHack player screen. Credit: Facebook.com

Historically, significant progress in the area of reinforcement learning (RL) has resulted from simulation environments in games such as Dota 2, Minecraft and StarCraft II. Unfortunately, these developments came with a taxing amount of computation, typically requiring the usage of thousands of GPUs at once for just one experiment. Even despite these costs, many of these RL methods didn't prove to be very applicable to solving real-world issues.

As soon as Facebook took note of the demand for an environment with a vast number of diverse observations that could still operate a simulation rapidly and at low computation costs, the social media giant initiated the open source NetHack Learning Environment (NLE) last year. Now in 2021, Facebook has announced its NeurIPS 2021 competition, including the NetHack Challenge—the most accessible grand challenge for AI research, organization together with AI crowdsourcing entity, AIcrowd.

Due to its unforgiving nature requiring players to start an entire game over in a new dungeon once their characters die, many regard NetHack as one of the most challenging games out there. In fact, even at the expert level, successfully completing the game requires an average of 25-50 times more steps than a typical StarCraft II game. Furthermore, as players' engagement with their environment and related objects are wholly intricate, users must often think outside the box or consult an outside source such as NetHack Wiki in order to win.

Luckily, because NetHack runs on the terminal, players can simulate gameplay very fast, training agents for more than 1.2 billion steps per

day with only two GPUs. In this way, NetHack Challenge kills two birds with one stone by testing the newest AI methods in a complex environment without the need for a supercomputer.

Despite these new developments, however, NetHack has actually existed since the 1980s. Though visually straightforward, the game presents a wealth of challenges, making it continuously popular among many different players. Moreover, the game remains completely free to play.

A considerable obstacle posed by NetHack lies in its permadeath feature, meaning that once a character dies, that player's gameplay session ends. Therefore, researchers hope that new ways of managing these higher stakes might also translate to real-world use, wherein AI can aid human users in creative thinking when faced with tricky situations.

Essentially, the Facebook NetHack challenge invites entrants to use any means necessary to employ agents capable of either beating the game, or more realistically, achieving as high a score as possible.

This competition will run from early June through October 15 of 2021, with winners announced at NeurIPS in December.

More information: Greffenstette, E., et al "Launching the NetHack Challenge at NeurIPS 2021." Facebook AI, 9 June 2021, ai.facebook.com/blog/launching … nge-at-neurips-2021/