FINAL VERSION(PLEASE LET EMILY OR LOIS KNOW FOR FURTHER CHANGE)
Release: 9am GMT Monday 22nd February

English version

Details announced for Google DeepMind Challenge Match

Landmark five-match tournament between the Grand Master-defeating Go computer program, AlphaGo, and best human player of the last decade, Lee Sedol, will be held from March 9 to March 15 at the Four Seasons Hotel Seoul.

February 22, 2016 (Seoul, South Korea) — Following breakthrough research on AlphaGo, the first computer program to beat a professional human Go player, Google DeepMind has announced details of the ultimate challenge to play the legendary Lee Sedol — the top Go player in the world over the past decade.

AlphaGo will play Lee Sedol in a five-game challenge match to be held from Wednesday, March 9 to Tuesday, March 15 in Seoul, South Korea. The games will be even (no handicap), with $1 million USD in prize money for the winner. If AlphaGo wins, the prize money will be donated to UNICEF, STEM and Go charities.

Regarded as the outstanding grand challenge for artificial intelligence, Go has been viewed as one of the hardest games for computers to master due to its sheer complexity which makes brute-force exhaustive search intractable (for example there are more possible board configurations than the number of atoms in the universe). DeepMind released details of the breakthrough in a paper published in the scientific journal *Nature* last month.

The matches will be held at the Four Seasons Hotel Seoul, starting at 1pm local time (4am GMT; day before 11pm ET, 8pm PT) on the following days:

1. Wednesday, March 9: First match
2. Thursday, March 10: Second match
3. Saturday, March 12: Third match
4. Sunday, March 13: Fourth match
5. Tuesday, March 15: Fifth match

The matches will be played under Chinese rules with a *komi* of 7.5 (the compensation points the player who goes second receives at the end of the match). Each player will receive two hours per match with

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three lots of 60-second *byoyomi* (countdown periods after they have finished their alloted time).[1] Each match is expected to take around 4-5 hours.

The tournament will be livestreamed on DeepMind's YouTube channel as well as broadcast on TV throughout Asia through Korea's Baduk TV, as well as in China, Japan, and elsewhere.

Match commentators will include Michael Redmond, the only professional Western Go player to achieve 9 dan status with 500 professional wins under his belt. Redmond will commentate in English, and Yoo Changhyuk professional 9 dan, Kim Sungryong professional 9 dan, Song Taegon professional 9 dan, and Lee Hyunwook professional 8 dan will commentate in Korean alternately.

Demis Hassabis, CEO and co-founder, Google DeepMind, said: *"Go is the most profound game that mankind has ever devised. The elegantly simple rules lead to beautiful complexity. Go is a game primarily about intuition and feel rather than brute calculation which is what makes it so hard for computers to play well. We are honoured and excited to be playing this challenge match against Lee Sedol, a true legend of the game, and whether we win or lose, we hope that the match will inspire new interest in Go from around the world."*

Quote from Park Chimoon, Vice Chairman, KBA
"The whole world is interested in this event as this is the first stage where humans and computers are competing in intelligence. I am proud that this historical stage is baduk (Go). I hope Lee Sedol 9 dan will win this time in order to prove humans' remarkable intelligence and preserve the mysteries of baduk."

Quote from Lee Sedol
"This is the first time a computer has challenged a human pro to an even game, and I am privileged to be the one to play it. Regardless of the result, it will be a meaningful event in baduk (Go) history. I heard Google DeepMind's AI is surprisingly strong and getting stronger, but I am confident that I can win, at least this time."

About Google Inc.
Larry Page and Sergey Brin founded Google in September 1998. Since then, the company has grown to more than 50,000 employees worldwide, with a wide range of popular products and platforms like Search, Maps, Ads, Gmail, Android, Chrome, and YouTube.

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[1] At the beginning of the match each player has 2 hours to play all of their moves, for each move they can take as little or as much time as they wish. When either player uses up their 2 hours they go into this byoyomi or "countdown time extension". Players rarely go into byoyomi at the same time.

In practice it works like this:
If you place your stone within 60 seconds you retain your 3 lots of 60 seconds
If you move in >60 seconds but <119 seconds you lose one byoyomi so you now have 2 lots of byoyomi
If you move in >120 seconds you lose two byoyomi so you would only have 1 lot so byoyomi left... and so on

Once you only have 1 lot of byoyomi left you can be out of the game if the timer goes over 60 seconds.

About Google DeepMind
DeepMind was founded in London in 2010 by Demis Hassabis, Shane Legg and Mustafa Suleyman. The mission of DeepMind is to solve intelligence and use it to make the world a better place. DeepMind was supported by some of the most iconic tech entrepreneurs and investors of the past decade, prior to being acquired by Google in early 2014 in their largest European acquisition to date.

About KBA (Korea Baduk Association)
The Korea Baduk Association (KBA) was founded in November 1945 with the mission of promoting baduk and supporting elite players. The pioneer of Korean baduk, Master Cho Namchul, was the leading founder. Today, the KBA has 317 professional players including 55 female pros, and organizes 7 international and 18 domestic tournaments for professional players, plus about 400 amateur events each year. Also, the KBA's largest events, the Korea Baduk League and Korea Women's Baduk League, have 10 and 8 teams each, all sponsored by corporations or regional governments. All games are broadcast live on Baduk TV, enriching baduk fans' experience.

Notes to editors
Press who wish to attend the match in person should fill in this form. Places are very limited so please await an RSVP.

During the tournament, press conferences will be held at the following times:
- 10am Korea time on Tuesday 8th March: Opening press conference
- 15 mins after each match day (Around 5.30/6pm Korea time - timing may change depending on when the match finishes)
- [Time TBC] Closing press conference

The press conferences will not be livestreamed. However, Demis will share remarks on his Twitter account: https://twitter.com/demishassabis

Quotes from Go professionals and commentators ahead of the match:
Ke Jie 9p[2] *"I used to think AI can never beat human, at least it won't happen within 10 years. but this is unbelievable... I think Lee Sedol will win the match in March. I really want to play AlphaGo, not just me, all the active Chinese pros want to play it."* Source.

Gu Li 9p *"Without any doubt, this has been an astonishing development, I believe it will defeat human in the future."* Source

Chou Chun-hsun 9p *"I have always thought that Go should not be regarded as sport, but culture and art. Being defeated by the computer, we should probably return Go to where it belongs and bring it to another level. For example, the objective of learning Go is not only to win tournaments, but to explore the benefits and joy it gives us."* Source.

Shi Yue 9p "It will probably be a good opportunity for us when the program reaches the level of a top player and is accessible by the general public. I would definitely play with it every day using different tactics in order to understand more about Go. In fact, AlphaGo is a tool invented by people, and a tool has to be used for us to judge its advantages and drawbacks." Source.

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[2] 9p means a 9-dan player - the highest level a professional player can attain

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Rémi Coulom, Developer of Crazy Stone (a leading Go computer programme):
[Commenting on how long it will be when a machine will win without a handicap] *"I think maybe ten years,"* he says. *"But I do not like to make predictions."* Source

"This is a really big result, it's huge" Source

Li Ting 1p - Vice president of the European Go Federation
"A lot of people will be shocked because for many years people have tried to sell the notion of Go as a game in which computers can never beat humans. As a promoter of Go, I think it is a good opportunity for more people to learn about this game, especially in Europe and America. Many people must have read about Go through recent news and are interested in it, furthermore, their interest may remain. We must discover more of the cultural and fun side of Go, so more people may appreciate the joy brought by Go. Our goal is to make Go the mind game that bewitches the world." Source

Comments from Koreans (source: KBA and Google Korea)

Jeong Jaeseung(Professor of Bio and Brain Engineering at Korea Advanced Institute of Science and Technology)
"The Lee Sedol-AlphaGo Match is not just about AI challenging human in a more complex game, Go, after beating human at chess. Unlike the past when AI calculated the probabilities and patterns for all moves, AI is challenging human with human-like reinforcement learning and strategy derived from deduction. The match, regardless of the result, will become a landmark in the history of AI."

Changhyuk Yoo (Professional player 9D, Head Coach of Korean Baduk Team)
"If AlphaGo's current level is similar to the one it showed during the match with Fan Hui, Lee Sedol will easily beat AlphaGo. However, we are not sure how much progress AlphaGo has made during the six months after the Fan Hui match. I originally expected that it will take long to see AI catch up with humans in Go, but was surprised to see AlphaGo win in the match against Fan Hui."

Changho Lee (Professional player 9D)
"I heard about the match between Lee Sedol and Google DeepMind's AlphaGo through the media. I am surprised that an AI could challenge a human pro on even game. I believe Google DeepMind challenged Lee Sedol because they thought AlphaGo has chance of winning. It will be an interesting match, but I think Lee Sedol will win this time."

Dongyoon Kang (Professional player 9D, Winner of the 20th LG Cup)
"I went through the game record of the match between AlphaGo and Fan Hui, and AlphaGo plays really well. It makes huge mistakes where standard procedures are necessary. I do not understand how computers can make such mistakes. There are some unnecessary steps. I think AlphaGo will ultimately lose after winning and losing some of the five matches. However, some people say that Lee Sedol earned USD 1 million prize money for free, but I

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do not agree. I would haved feared the result. Some say that AlphaGo's true level was not revealed, as Fan Hui was not a very strong competitor, but I think AlphaGo showed enough how strong it is in Go during the match with Fan Hui.

Janghoon Kim (Korean Singer / Honorary Ambassador of KBA)
"I think Lee Sedol will win this match. However, I believe some day, computers will beat human in Go. However, the important thing is to make people around the world interested in Go by connecting the analogue game of Go with IT, not who wins the match. It is a pleasure to have Lee Sedol of Korea play the leading role in the movement. I am curious about Lee Sedol's thoughts about the match with the computer."

Expected Q&As
<DeepMind>
- Match detail
Q. Some point out that Fan Hui's Go skills are far below those of Asian players, and that it will therefore be difficult for AlphaGo to beat Lee Sedol. How confident are you in AlphaGo's chances in winning the match?
Q. Why will you use Chinese rules for the match? Isn't it a disadvantage for Lee Sedol?
Q. How do you decide players' colors? Nigiri
Q. Who will put the Go stones on the board for AlphaGo?
Q. Who determined the rules for this match? If DeepMind devised the rules, is it fair to say that it set up the rules to favor AlphaGo?
Q. How many people are working in DeepMind?
Q. How does the match venue look like? Who are allowed to watch live in the venue?

- On-site reporting
Q. Do you plan to open the match venue to the press? Can the press take pictures at the match venue?
Q. Do you have a press room on the match venue? Do you have plan to hold a daily post match brief?
Q. Can I use the YouTube livestreaming video on my news/TV program?

- A.I. and the future
Q. If AlphaGo cannot defeat Lee Sedol, what will be the next plan for AlphaGo? Are you planning to re-challenge Lee Sedol?
Q. In which areas do you think DeepMind's Machine Learning technology can be applied to over the next five years?

Q. Many believe that Google will be the winner anyway even if Google does not win the match because this match will help Google strengthen its leading position in AI technology development. However, some are voicing their concerns over AI's rapid growth. Is Google prepared for this?

Q. Some fear that A.I. will replace humans in jobs. What are your thoughts on this prediction?

Q. AI technology itself is important, and creating a business model by utilizing the technology is important as well. Do you believe that Google will also be a leader in this area?

<KBA>
Q. AlphaGo has learned around a million games so far. Google DeepMind expects a 50:50 chance of AlphaGo defeating Lee Sedol. What is your opinion on the winning chances?

Q. AlphaGo has selected a Korean Go player to be its opponent. Do you think that the match will contribute towards enhancing the position of Korea's Go industry?

Q. Some worry that the popularity of Go will wane if AlphaGo beats Lee Sedol. What do you think?

Q. What has been the reaction from other top Go-playing countries like China upon hearing the news that Lee Sedol has been selected to be the opponent in the match?

<Lee Sedol>
Q. How confident are you in your chances in winning the match?

Q. What is your strategy to win against AlphaGo?

Q. If AlphaGo was a human player, what kind of player do you think it would be?

Q. You have been chosen by Google as the world's best Go player. How do you feel about participating in the match of the century?

Q. What are you going to do with the prize(USD 1mil)?

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outline

Revisit the meaning of the match

Specific match details

- Dates and times (revisit of what we announced on Feb. 5th)
- 1pm, Korea time
    - March 9: First match
    - March 10: Second match
    - March 12: Third match
    - March 13: Fourth match
    - March 15: Fifth match
- Venue
    - Four Seasons Seoul
    - ~~floor layout??~~
    - how we operate livestreaming and commentator room
- Press Conferences (will be onsite, invite only)
    - Suggest Tuesday 8th March 4pm on site
    - 9th March (post match)
    - 10th March (pre & post)
    - 12th March (pre & post)
    - 13th March (pre & post)
    - 15th March (pre & post)
- Rules (timing)
- Commentators (EN/KR) & highlights reel - Michael Redmond and Korean
- YouTube Live Stream information
- Television Broadcast information

6. Quotes
   - Demis
   - Lee Sedol
   - KBA

For EMEA/US (doc here)
- how interest in Go has grown
- Fun stats/facts about the history of Go (as they won't know much)

- Third party comments (existing comments being collated here)
    - Chang-hyuk Yoo (baduk player- P 9dan)
    - Changho Lee (baduk player- P 9dan)
    - Dongyun Kang (baduk player - P 9dan)
    - Hongjun Yoo (baduk fan, famous writer)
    - Jaesung Chung (KAIST(like korea MIT) professor)
    - Jinhyung Kim(Lead of Korea Software research center)
    - anyother from UK team?

Korean version

https://docs.google.com/document/d/17xd2tCmIO7uALWAGxdX5vfFB7tT1AOD9GnVgvn3DXJc/edit

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Third party comments

구글 딥마인드 챌린지 매치 관련 한국 주요인사 코멘트 모음

정재승 교수, KAIST 바이오및뇌공학과 교수
"이번 이세돌과 알파고의 대결은 체스를 이겼던 인공지능이 좀더 복잡한 바둑으로 인간에게 도전을 하는 것, 그 이상의 의미가 있다. 온갖 경우의 수에서 이길 확률과 패턴을 계산하던 인공지능이 이제 인간처럼 경험으로 학습하고 추론을 통해 전략을 짜는 방식으로 인간에게 도전한 것이기 때문이다. 이번 대국은, 승부와 상관없이, 인공지능 역사에 새로운 장이 될 것이다"

유창혁 9단, 바둑 국가대표팀 감독
"지난 10월에 있었던 알파고와 판후이 프로기사의 대국에서 보여준 알파고의 실력이라면 이세돌 九단과의 실력 차이로 싱거운 경기 결과가 나올 수도 있다. 그러나, 판후이 프로기사와의 대국 이후 6개월 동안 알파고의 실력이 얼마나 발전했는지 알 수 없기 때문에 경기 결과를 쉽게 예측할 수 없다. 인공지능이 바둑에서 인간의 실력에 근접하는데 더 많은 시간이 걸릴 것으로 예상했는데 알파고가 판후이 프로기사와의 대국에서 승리한 것을 보고 많이 놀랐다. 바둑을 정복한 인공지능이 앞으로 어떤 일을 할 수 있을지 기대된다."

이창호 9단
" 이세돌 구단과 구글 DeepMind의 알파고(AlphaGo)의 5번기 소식은 기사를 통해 접했다. 우선 인공지능(AI) 수준이 프로기사와 대국할 정도로 발전했다는 것이 많이 놀라웠다. 구글

DeepMind에서도 어느 정도의 승산이 있을 것이라고 생각하기 이세돌 9단에게 도전했을 것이라고 본다. 재미있는 승부가 될 것이라고 생각되지만, 이번 승부는 이세돌 구단이 승리할 것 같다. "

강동윤 9단

"알파고가 둔 대국의 기보를 다 봤는데 정말 잘 둔다. 정석에서 큰 실수를 하는 거 같은데 컴퓨터가 어찌 그런 실수를 할 수 있는지 이해가 안 간다. 불필요한 수순이 있다. 승부는 알파고가 5번기 시리즈에서 졌다가 이겼다 하면서 결국은 불리하지 않을까 생각한다. 하지만 사람들은 이세돌 9단이 12억을 공짜로 벌었다는 반응이던데, 나라면 겁날 것 같다. (판후이 프로가 좀 약해서 알파고의 실력이 잘 드러나지 않는다는 얘기도 있다.) 판후이 프로와의 바둑에서 알파고는 이미 강한 실력을 충분히 뽐냈다고 생각한다."

김장훈 가수 / 한국기원 홍보대사

"이번에는 이세돌 9단이 이길 것 같다.하지만 언젠가는 컴퓨터가 이길 날이 오리라 생각한다. 중요한건, 승부보다는 아날로그 게임의 결정체인 바둑이 IT와 연관됨으로써 전세계인에게 바둑에 대한 관심을 갖게 한다는것이 중요하다는 생각이고 한국의 이세돌9단이 그 선도적 입장에 선다는 것은 즐거운 일이라고 생각한다. 컴퓨터와 대국을 앞둔 이세돌 9단의 마음이 궁금하다."

<한국기원>

Q. 알파고가 지금까지 학습한 경기가 100만 경기 정도에 이른다. 구글 딥마인드는 50대 50의 확률로 알파고가 승리할 가능성을 점치고 있는데, 한국기원의 의견은 어떠한가?

Q. 알파고의 대전 상대로 한국의 기사가 선정됐다. 이번 인공지능과의 대국이 향후 바둑계의 한국의 위상을 더 높이는 데 기여할 수 있을 것이라 예상하는가?

Q. 이세돌이 알파고에게 진다면 바둑의 인기가 내려갈 것이라는 전망도 있다. 이 점에 대해서 어떻게 생각하는가?

Q. 이번 대국으로 중국 등 다른 바둑 강국의 분위기는 어떠한가?

<이세돌>

Q. (제한시간 발표와 관련하여) 판후이 2단의 공식전에서 제한시간이 있었을 때와 없었을 때 승패가 크게 나뉘었다. 이번 제한 시간 설정 (혹은 미설정) 이 본인에게 유리하게 작용할 것으로 생각하는가?

Q. 알파고가 사람이라면, 어떤 바둑 스타일을 가지고 있는 기사라고 평할 수 있겠나?

Q. 구글이 선택한 현재 최고의 바둑 챔피언으로 선택된 것이나 다름 없다. 세기의 대결에 참가하게 된 소감은?