Atılım Üniversitesi SimLab Faaliyetleri Raporu

SimLab, Kasım 2012 Tarihinde resmi olarak çalışmalarına başlayan ECE projesi ile birlikte faaliyetlerine başlamıştır. Daha sonra, 15. Kasım 2013 tarihinde resmi olarak çalışmalarına başlayan CAN projesi ile faaliyetlerine devam etmektedir. Projelerde yürütülen faaliyetler ve laboratuvarın üniversitemize ve araştırmacılara olan katkıları aşağıda özetlenmektedir.

ECE Projesi

Proje Kodu	112K287 (ECE)
Proje Yürütücüsü	Doç. Dr. Nergiz Ercil ÇAĞILTAY, Yazılım Müh. Blm.
Proje Ertağı Diğer Kurumlar	Hacettepe Üniversitesi Beyin cerrahisi Bölümü
Proje Adı	Endoskopik Cerrahisi Eğitim (Ece)'inde Teknoloji ile Zenginleştirilmiş Ortamların Etkinliğinin Araştırılması
Başlama Tarihi	01.11.2012
Toplam Bütçe	395,135
Kurum Hissesi	28,558
Destek Süresi	3 YIL
Destekleyen Kurum	Tübitak
Destek programı	1001
Araştırmacılar	Y.Doç.Dr. Erol Özçelik, Çankaya Ü. Y.Doç.Dr. Gökhan Şengül, Bilgisayar Müh. Blm.
Bursiyerler	2 Tam zamanlı, 4 yarı zamanlı

CAN Projesi

Proje Kodu	113S574 (CAN)
Proje Yürütücüsü	Doç. Dr. Nergiz Ercil ÇAĞILTAY, Yazılım Müh. Blm.
Proje Ertağı Diğer Kurumlar	Çankaya Üniversitesi, Bilgisayar Mühendsiliği Bölümü Gazi Üniversitesi, Beyin Cerrahisi Bölümü
Proje Adı	CerrAhi Navigasyon (CAN) Sistemi
Başlama Tarihi	15.11.2013
Toplam Bütçe	1,341,503 (Atılım Üniversitesi: 328,086)
Kurum Hissesi	22,462
Destek Süresi	3 YIL
Destekleyen Kurum	Tübitak
Destek programı	1003- Büyük Ölçekli Proje
Araştırmacılar	Prof. Dr. Elif Aydın, Elektrik-Elektronik Müh. Blm.
Bursiyerler	2 Tam zamanlı, 4 yarı zamanlı

Laboratuvar Bünyesinde Gerçekleştirilen Yayınlar

1. Borcek, A.O., Maras, H., Tokdemir, G., **Cagiltay**, **N.E.** (2014) Surgical Navigation Systems in Medical Education, 3rd Simulation in Medical Education Conference, Hacettepe University, 13-15 November, 2014, Ankara Turkey, POSTER.

2. **Cagiltay, N. E.,** Ozcelik, E., Sengul, G., & Berker, M. (2017). Construct and face validity of the educational computer-based environment (ECE) assessment scenarios for basic endoneurosurgery skills, Surg Endosc., 31(11), pp. 4485–4495, DOI 10.1007/s00464-017-5502-4

3. Dalveren, G.G.M., **Cagiltay, N.E.** (2017), Predicting Experience Levels of Surgeons by Eye Gaze Data in a 3D Simulation Environmen, 5th International Symposium on Engineering, Artificial Intelligence and Applications (ISEAIA), Full Paper Proceedings, pp.93-96.

4. Topalli, D., Sahinoglu, B.Y. , Senekci, O. , Tasyurek, O.C., **Cagiltay, N.E.** (2017), Skill-Based training: Computer-based and Mobile Environments, 5th International Symposium on Engineering, Artificial Intelligence and Applications (ISEAIA), Abstract Proceedings, pp.38.

5. Topalli, D., Camalan, S., **Cagiltay, N.E.** (2017), Effect of Gender on Performance in a Surgical Simulation Environment, 5th International Symposium on Engineering, Artificial Intelligence and Applications (ISEAIA), Full Paper Proceedings, pp.130-134.

6. D. Topalli, **N.E. Cagiltay** (2017), Measuring Difficulty Levels of Simulation-Based Skill Training Tasks: A Case Study for Endoscopic Surgery, 5th International Symposium on Engineering, Artificial Intelligence and Applications (ISEAIA), Full Paper Proceedings, pp.110-115.

7. Dalveren, G.G.M., **Cagiltay, N.E.,** Ozcelik, E., Maras, H. (2017). Simulation-Based Environments for Surgical Practice, Proceedings of 2017 4th International Conference on Control, Decision and Information Technologies (CoDIT'17) / April 5-7, 2017, Barcelona, Spain, pp. 1153-1156

8. Topalli, D., **Cagiltay, N.E.** (2017). Using Intelligent Support Systems For Endoscopic Surgery Training: Analysis Of Hand Motion, Proceedings of 9th annual International Conference on Education and New Learning Technologies, (EDULEARN, 2017), Barcelona (Spain). 3rd - 5th of July, 2017, pp.6596.

9. Topalli, D., **Cagiltay, N.E.,** Ozcelik, E. (2017). Gamification In Neurosurgery Education, Proceedings of 9th annual International Conference on Education and New Learning Technologies, (EDULEARN, 2017), Barcelona (Spain). 3rd - 5th of July, 2017, pp. 6580-84.

10. Dalveren, G.G.M., **Cagiltay, N.E**., Ozcelik, E., Maras, H.H. (2017). Simulation-Based Environments for Surgical Practice, 4th International Conference on Control, Decision and Information Technologies (CoDIT'17) to be held in Barcelona, April 5-7, 2017 at Barcelona, Spain.

11. Bagherzadi, N., Borcek, A. O., Tokdemir, G., **Cagiltay, N.,** & Maras, H. H. (2016, October 2-5). Analysis of Neurooncological Data to Predict Success of Operation Through Classification. In Proceedings of the 7th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (pp. 485-486). ACM, Seattle, ABD, POSTER

12. Topalli, D., **Cagiltay, N.E.,** (2016). Insights for Instructional System Designers by Understanding the Skill Levels of Endoscopic Surgery Education Programs, Proceedings of ICERI2016 (9th annual International Conference of Education, Research and Innovation) Conference 14th-16th November 2016, Seville, Spain, ISBN: 978-84-617-5895-1, pp. 1635-1641.

13. **Cagiltay, N.E.,** Topalli, D., (2016). Understanding Skill Improvements by Practicing the Usage of Surgical Instruments, Proceedings of ICERI2016 (9th annual International Conference of Education, Research and Innovation) Conference 14th-16th November 2016, Seville, Spain, ISBN: 978-84-617-5895-1, pp. 1642-1649.

14. **Cagiltay, N.E.,** Topalli, D., Borcek, A.O, Tokdemir, G., Maras, H.H., Tonbul, G. Aydin, E. (2016). Neuronavigation Skill Training Through Simulation: Insights from Eye Data, Proceedings of ICERI2016 (9th annual International Conference of Education, Research and Innovation) Conference 14th-16th November 2016, Seville, Spain, ISBN: 978-84-617-5895-1, pp. 1666-1673.

15. Topalli, D. & **Cagiltay, N.E.,** (2016). Understandıng The Effect Of Passive View On Surgical Performance In Simulation- Based Endoscopic Surgery Education, Proceedings of ICERI2016 (9th annual International Conference of Education, Research and Innovation) Conference 14th-16th November 2016, Seville, Spain, ISBN: 978-84-617-5895-1, pp. 1650-1658.

16. **Cagiltay, N.E.,** Borcek, A.O., Tokdemir, G., Maras, H.H. & Topalli, D. (2016). Problems of Gaining Neuronavigation Skills on Surgical Education Programs: A case study in Turkey. In Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2016 (pp. 602-607). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE), USA.

17. **Cagiltay, N.E.,** Topalli, D., Berker, M. (2016). Virtual Simulation Technologies in Neurosurgery, In E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education, Washington DC, USA, Vol. 2016, No. 1, pp. 608-615

18. Börcek, A.O., **Cagiltay, N.E.,** Tokdemir, G., Maras, H., Türk Beyin Cerrahlarının Teknolojiye Ulaşım İmkanları, Türk Nöröşirurji Derneği 30. Bilimsel Kongresi, Türk Nöroşir Dern. 26 (Ek Sayı 2): 2016, sa:106.

19. **Cagiltay, N. E.,** Hanalioglu, S., Isikay, I., Berker, M. (2015). A Technology Enhanced Endo-neurology education model: A Case study on endoscopic pituitary surgery, 29th Scientific Congress of Turkish Neurosurgical Society, 17-21 April 2015, Antalya, Turkey. The best paper award of the year is given.

20. Menekse, G.G., **Cagiltay, N.E.,** Tokdemir, G. (2015). Patient Safety & Clinical Decision Support Systems (CDSS): A Case Study in Turkey, The 5th IEEE International Conference on E-Health and Bioengineering - EHB 2015 Grigore T. Popa University of Medicine and Pharmacy, Romania, November 19-21, 2015

21. Menekse, G. G., **Cagiltay, N. E.,** Ozcelik, E. (2015). Personality Type Indicator Models in Serious Games: A case study in a Surgical Navigation Game, ITHET, 14th International Conference on Information Technology Based Higher Education and Training, 2015 - 11-13 June, 2015, Caparica, Lisbon, Portugal

22. Tokdemir, G., Altun, G., **Cagiltay, N.E.,** Maras, H.H., Borcek, A. (2015). Multimodal Interaction Flow Representation for Ubiquitous Environments- MIF: A Case Study in Surgical Navigation Interface Design, Springer International Publishing, HCII, 2015.

23. Aydin, A., **Cagiltay, N.E.,** Ozcelik, E., Tuner, E., Sahin, H., Tokdemir, G. (2015). GUIs with Haptic Interfaces, Springer International Publishing, HCII, 2015.

24. **Cagiltay, N.E.,** Berker, M. Ozcelik, E. Problems of endoneurosurgery education: a case study in Turkey, 9th International Technology, Education and Development Conference, Madrid, 2nd-4th of March, 2015.

25. Berker, M., **Cagiltay, N.E.**, Isikay, I. (2015). Simulations for Surgical Education: A case study for endoneurosurgery, 9th International Technology, Education and Development Conference, Madrid, 2nd-4th of March, 2015.

26. **Cagiltay, N.E**. (2014). Endonöroşirürji Cerrahi Eğitimi (ECE) Simülasyon Projesi, Çağrılı konuşmacı, 3. Endoskopik Kafatabanı Cerrahisi Kursu, 12-13 Aralık, 2014, Ankara Türkiye.

27. Berker, M., **Cagiltay, N.E**., Isikay, I., Tuner, E., Unal, B., Erol, B. (2014). Simulation in Endoneurosurgery Education: a case study in Pituitary Surgery, 3rd Simulation in Medical Education Conference, Hacettepe University, 13-15 November, 2014, Ankara Turkey.

28. Guney, S., **Cagiltay, N.E.,** Tuner, E., Cereci, I. (2014). The Borderline between serious games and simulations , 6th International Conference on Education and New Learning Technologies Barcelona - 7th - 9th of July 2014, Bascelona, Spain, Proceedings Book of EDULEARN14, **ISBN:** 978-84-617-0557-3, pp. 7314-7321, http://library.iated.org/view/GUNEY2014BOR.

29. **Cagiltay, N.E.,** Cereci, I. (2014). Enhanced IMS Metadata for Surgecal Education Simulators, 5th International Future-Learning Conference on Innovations in Learning for the Future 2014: e-Learning May 5-7, 2014, İstanbul, TURKEY

30. Eda Topaloglu, E., Topalli, D., **Cagiltay, N.E.** (2014). Designing Serious Games by Considering Gamer Tasks, 5th International Future-Learning Conference on Innovations in Learning for the Future 2014: e-Learning May 5-7, 2014, İstanbul, TURKEY.

31. Özçelik, E., **Cagiltay, N. E.,** Sengul, G., Tuner, E., & Unal, B. (2014). The Effect of Split Attention in Surgical Education. In Learning and Collaboration Technologies. Technology-Rich Environments for Learning and Collaboration (pp. 3-10). Springer International Publishing (HCII, 2014. Proceedings of HCI International 2014 Conference, 22-27 June 2014, Greece).

32. Sengul, G., **Çağıltay, N. E.,** Özçelik, E., Tuner, E., & Erol, B. (2014). Haptic User Interface Integration for 3D Game Engines. In Human-Computer Interaction. Applications and Services (pp. 654-662). Springer International Publishing. (Proceedings of HCI International 2014 Conference, 22-27 June 2014, Greece).

33. Cereci, I., **Cagiltay, N.E**., Berker, M. (2013), Technology enhanced Surgery Education environments: requirements and system models, The International

Workshop on Innovative Simulation for Healthcare, 25-27 Athens, Greece, 2013 proceedings book, pp 78-83.

34. **Cagiltay, N.E**., Teknoloji ile Zenginleştirilmiş Eğitim Ortamları Hazırlamanın Yedi Prensibi: ERRL ve ECE Örnekleri, 1. Uluslararası Öğretim Teknolojileri ve Öğretmen Eğitimi Sempozyumu (1st International Instructional Technologies & Teacher Education Symposium) 26 - 28 Haziran 2013 Trabzon, http://ittes.org/ITTES_2013/, ITTES 2013

35. **Cagiltay, N.E.,** Berker, M., Cereci, İ. (2013). Teknoloji ile Zenginleştirilmiş Öğrenme Ortamlarında Cerrah Eğitimi: Gereksinimler, 7. Uluslar arası Bilgisayar ve Öğretim teknolojileri Sempozyumu, 6-8 Haziran 2013, Erzurum. http://www.icits2013.org/default.aspx?ID=19&DIL=1.

36. **Çağıltay, N.E.** (2017). Sağlık için Bilişim, Atılım Üniversitesi İz Degisi, Nisan 2017, Sayı 27.

37. **Çağıltay, N.E.** (2017). Bilişim teknolojilerinin cerrahi eğitim alanına dokunuşu -2, Herkese Bilim Teknik Dergisi, 26 Mayıs 2017, Sayı 61.

38. **Çağıltay, N.E.** (2017). Bilişim teknolojilerinin cerrahi eğitim alanına dokunuşu-1, Herkese Bilim Teknik Dergisi, 19 Mayıs 2017, Sayı 60.

39. Dalveren, G.G.M., **Çağıltay, N.E.** (2017). Cerrahi Eğitim Alan Kişilerin Beceri Seviyelerinin Göz Hareketlerinin Üç Boyutlu Simülasyon Ortamında İncelenmesi ile Tahmin Edilmesi, Türkiye Bilişim Derneği, 34. Bilişim Kurultayı Bildiriler Kitabı, Sa. 1-4.

40. Topalli, D., Camalan, S., **Çağıltay, N.E.** (2017). Cerrahi Simülasyon Ortamında Cinsiyetin Performansına Etkisi, Türkiye Bilişim Derneği, 34. Bilişim Kurultayı Bildiriler Kitabı, Sa. 9-12.

41. Tuner, E., Topallı, D., **Çağıltay, N.E.** (2017) Simülasyona Dayalı Cerrahi Eğitim Süreçlerinde Navigasyon Desteğinin Etkisinin Araştırılması, Türkiye Bilişim Derneği, 34. Bilişim Kurultayı Bildiriler Kitabı, Sa. 13-16.

42. Topallı, D., **Çağıltay, N.E.** (2017). Simülasyon Tabanlı Eğitim Senaryolarının Zorluk Seviyelerinin Hesaplanması, Türkiye Bilişim Derneği, 34. Bilişim Kurultayı Bildiriler Kitabı, Sa. 17-20.

43. **Çağıltay, N.E.,** Topalli, D., Güney, S. (2017). Simülasyon Tabanlı Beceriye Yönelik Eğitim Sistemlerinde Oyunlaştırmanın Etkisi, 11. Bilgisayar ve Öğretim Teknolojileri Sempozyumu, ICITS 2017, Mayıs, 24-26. (ABSTRACT

44. Eyüboğlu, B.G., Topalli, D., **Cagiltay, N.E.,** Tonbul, G., (2016). Simulasyon Tabanlı Cerrahi Eğitim Programları ve El Performansı, Tıp Teknolojileri Kongresi (Tıptekno, 2016), 27-29 Ekim, 2016, Antalya, Türkiye. Bildiriler Kitabı pp. 330-333.

Laboratuvar Bünyesinde Gerçekleştirilen Tamamlanan Tezler:

1. Gonca Gökçe Menekşe Dalveren (2017). Monitoring Through Eye-Movement Data In Context-Aware Adaptive Software Systems: A Case Study On Endo-Neurosurgery Training Programs, Department of Software Engineering, **PhD**

2. Burak Gökberk Eyüboğlu (2016). Developing a measure to better understand the handedness skill levels for designing simulation-based systems, Atilim University, Department of Computer Engineering, **BS**

3. Sinem Güney (2015). Understanding the effect of serious games on surgical education with respect to simulation environments, Atilim University, Information Technology Service Management, **BS**

4. Eda Topaloğlu (2014). A task flow design tool for serious games: an extended version of uml-ad (uml-ade), Department of Information Systems Engineering, **BS**
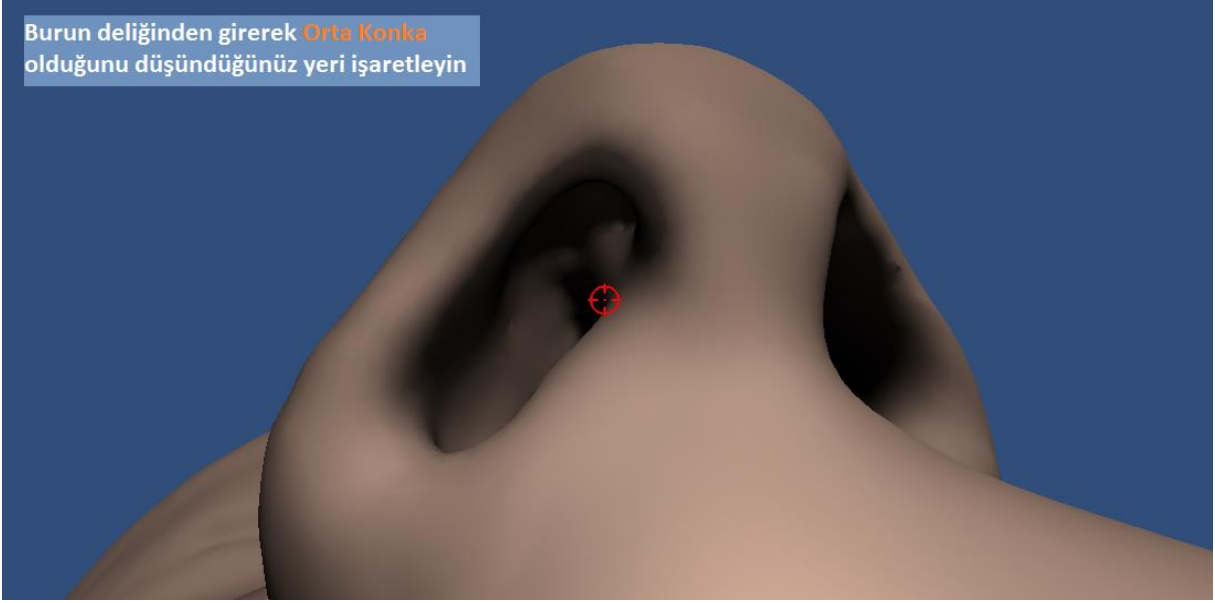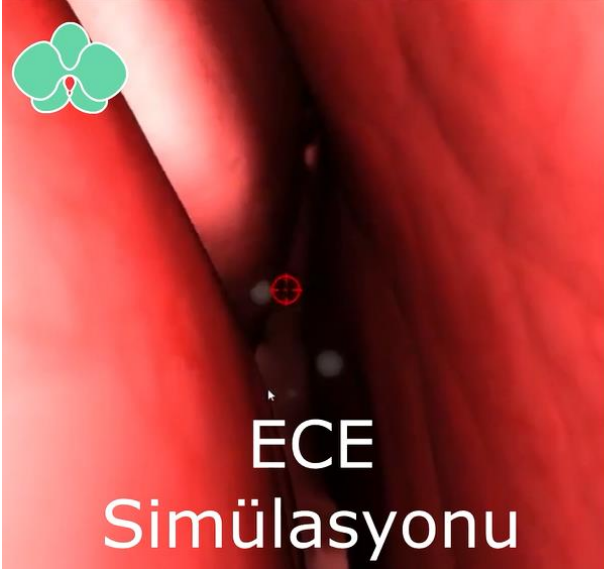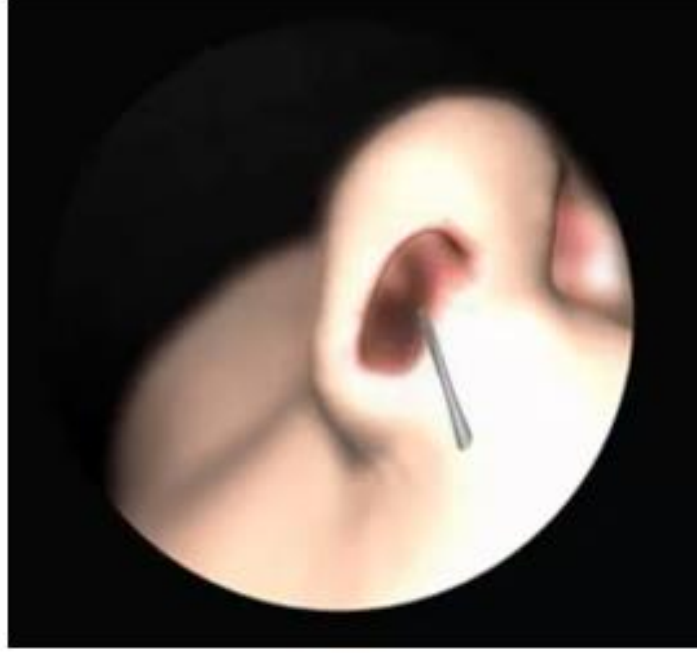
Laboratuvar Çalışmaları
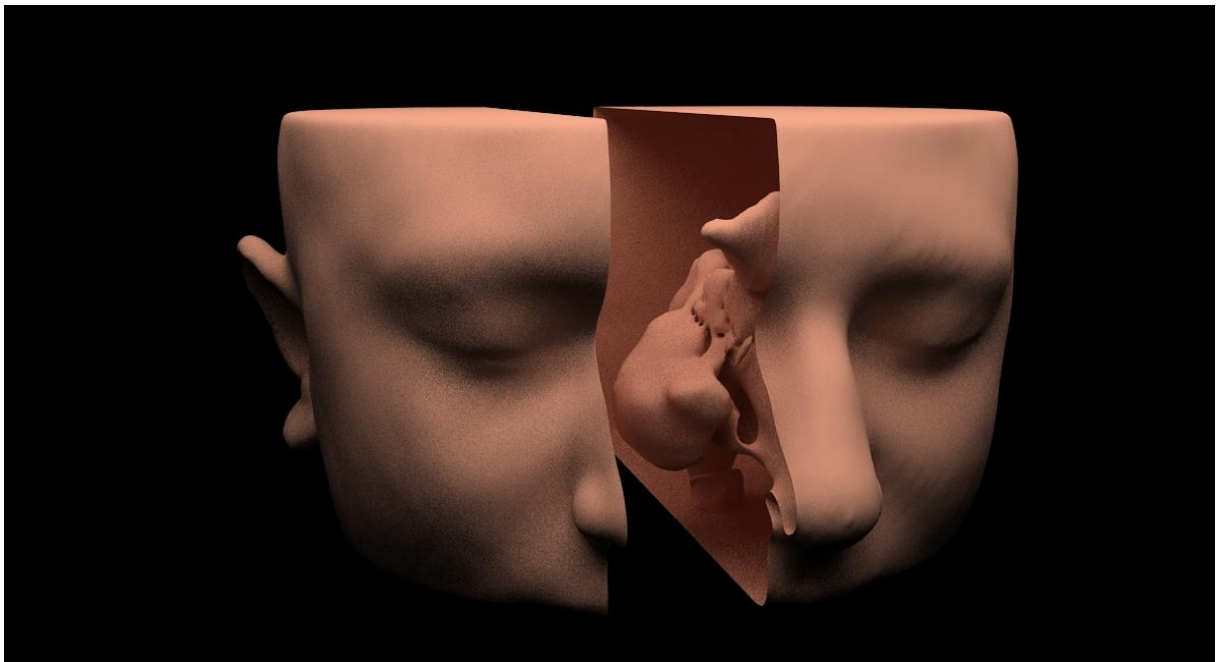
Burun deliğinden girerek Orta Konka olduğunu düşündüğünüz yeri işaretleyin

ECE Simülasyonu

Gerçek Ameliyat