

BIO-DATA



Name : Dr. Kalpeshkumar J Chudasama

Present Designation : Associate Professor, (LM-ISTE), Electrical Engineering Dept., A.D. Patel Institute of Technology (ADIT), CVM University, New V. V. Nagar, Anand, Gujarat, India.

Address : A-27, Sukirtan Bunglows, Near A.D. Patel institute of Technology campus , New V.V. Nagar, Mogri 388345, Anand, Gujarat, India

Major Strength : Self-confidence, Teaching skill, Industrial Experience

Member : Society of Power Engineers, ISTE (LM)

ORCID ID : 0000-0001-7855-3359

WOS Researcher ID : AAW-8712-2020

Scopus Author ID : 26421005000

Google Scholar ID: eM9jlHEAAAAJ

Educational Background:

Degree	Passing year	College/University	Result
S.S.C	1990	G.H.S.E.B	Distinction (76.2 %)
H.S.C	1992	G.H.S.E.B	Distinction (76%)
B.E.Electrical	1997	B.V.M Engg, / S. P. University	5.95 C.P.I (Final year Eq. % : 64.5%)
M.E.Electrical Power Systems	2003	B.V.M Engg. / S.P. University	7.47 C.P.I (69.13%)
Ph.D.	October 2016	Gujarat Technological University	

Skills summary:**Software skills:** MATLAB, LabVIEW, ETAP, Homer & PSCAD**Hardwar skills:** Numerical Relays, LabVIEW DAQ card based hardware& Power logger.**EXPERIENCE: Total 23½ years****Industrial experience: 4 years**

Name & Address of the Employer	Designation of the post held	Period of service From To	Nature of service
Vishal Corporation V.U.Nagar, GIDC	Trainee Electrical engineer	Aug'97 to Jan'98	Design, testing & Production control
Jyoti Limited Vadodara	Electrical Engineer (Apprentice)	Jan'98 to Aug'98	Design & Testing, R&D Department
Gujarat Flurochemicals Ltd. Halol	Electrical Engineer	Aug'98 to Nov'2000	Projects execution and Electrical maintenance
Nirayu P. Ltd., Halol (Alembic group company)	Electrical Engineer	Dec' 2000 to Aug 2001	Projects execution and Electrical maintenance

Teaching experience: 19½ years

Name & Address of the Employer	Designation of the post held	Period of service From To	Nature of service
VVP Engg. College Rajkot	Adhoc lecturer	Oct'03 to Feb'04	teaching
Atmiya Inst. Technology, Rajkot	Lecturer	Feb'04 to June'04	teaching
Charotar Inst. Technology, changa	Lecturer	June'04 to July'04	teaching
A. D.Patel Inst. Technology, New V.V.nagar	Assistant Professor Associate Professor	6/7/04 to 30/6/07 Continue since 1/7/2007	teaching

STTP/Conferences/Seminar/ Symposium Attended:

- 1) 2 days training course on “Evolution of Cabels” sponsored by Vishal Corporation
- 2) 2 week Staff Development Programme named “Development of basic teaching competencies for engineering college teachers”, organized by National Institute of Technical Teachers Training & Research at BVM, 5.05.2005 to 20.05.2005.
- 3) One day symposium on “Role of Engineers in natural disaster mitigation & management” held at BVM on 17th Sep., 2006.
- 4) Seminar on “Robotics” was attended held at BVM in August 2006.
- 5) One day workshop on “Enhancing Student Satisfaction” held on 29th Sept., 06 at ADIT
- 6) One day workshop on “Getting mileage through Industrial tours” & Visits” on 14th Sept.at ADIT.
- 7) One week AICTE-ISTE sponsored STTP on “Advance in Neuro-Fuzzy systems and their application”, ADIT, 19th march to 23rd march 2007.
- 8) ISTE chapter-ADIT sponsored one day workshop on “innovative laboratory practices for EE151 on 8th August, 07 at ADIT
- 9) ISTE chapter-ADIT sponsored & Electrical Engg. Deptt. Organized 3 days workshop on “Training Programme for Mi-power software- A step to quality education from sep. 6 to sep.8, 07. at ADIT
- 10) One day Seminar cum workshop on “Cognitive Language skills for 21st century on 1st nov,07. at Carier Development Centre at V.V.Nagar.
- 11) 12th ISTE Guj. State convention and one day symposium on “ Excellence in Technical Education Through innovation” on 20th oct,07 at BVM
- 12) Three days first international conference on “Advances on energy research” at Bombay IIT from 12th to 14th Dec,07.
- 13) One day workshop on “Alumina interaction with past students in India & abroad” at ADIT
- 14) Two days crash course on “Soft computing for engineers using MATLAB On 2-3rd feb,08 at GCET.
- 15) Seminar under ISTE student chapter on power system challenges in newzeland on 7th feb,08 at BVM
- 16) A one day workshop on “Recent advances in power systems” was attended on 4th April 2008 at ADIT
- 17) One week Short term training Programme on “Modern trends in power system operation and control” organized by Chandkheda Govt. Engg. College form 5th Jan 09 to 10th Jan 09 at Chandkheda, Ahmedabad.
- 18) A National level Seminar on “Nanoways-09” at Nirma Institute of Technology, Ahmedabad
- 19) One week Short term training Programme on “Advance Engg. Optimization through intelligent techniques” organized by SVNIT. Engineering College in Dec 2009 at Surat. 14/12/09to18/12/09.
- 20) “14th ISTE GUj. State faculty convention” and one day seminar on “Managing Technical Education for leveraging Innovation and Entrepreneurship” on 7th Nov.,09 at LDRP, Gandhinagar.

- 21) Two days workshop on “Application of Labview: Instrumentation, Communication and Signal Processing”, May 10-11, 2010, Nirma University, Ahmedabad.
- 22) One week CEP & QIP programme on “Energy Management”, IIT Bombay, Nov. 22-26, 2010.
- 23) One week Short term training programme on “Electrical Machine analysis using finite element packages” organized by Nirma Institute of Technology at from 21st June 10 to 26th Jan 2010 at Chandkheda, Ahmedabad.
- 24) One week Modular Training Programme on “Numerical protection of power system”, from 20/06/11 to 24/06/11.
- 25) One week STTP on “LabView graphical programming and data acquisition basic training” held at SVNIT anchor institute (engg. and auto) from 17/01/12 to 21/01/12.
- 26) One week STTP on “Matlab and Simulink for electrical Engg.” held at Govt Engg College Surat from 25.06.12 to 29.06.12.
- 27) Two days ISTE workshop on “Akash for education”, IIT Bombay, 10 & 11 Nov., 2012.
- 28) Two week FDP attended at MNIT Jaipur on “Power Electronics” from 11 Dec to 20Dec 2017
- 29) TEQIP sponsored three days workshop on “DSP” attended at BVM Engg. College from 2nd to 4th Jan 2018.
- 30) One day training Programme on “Various aspects of renewable energy technologies” organized by SPRERI dated on 7/8/2018
- 31) Attended 1 day KAIZEN CDC workshop on “Team Creativity” on 01/09/2018
- 32) Attended 1 day KAIZEN CDC workshop on “skills for student parenting” on 25 October 2018.
- 33) Attended CDC KAIZEN 2days FDP on “IoT” from 21 to 22 June 2019.
- 34) Attended 1 day KAIZEN CDC workshop on “continuing professional development for faculty” on 18.02.2020
- 35) Attended 1 day KAIZEN CDC workshop on “Contours for liberal education” on 24.02.2020
- 36) Attended one week FDP on “SCILAB SPOKEN TUTORIAL” organized by ADIT EE department in association with IIT BOMBAY from 25-30 May 2020.
- 37) Attended virtual event organized by IEEE STANDARDS ASSOCIATION & IEEE PES GUJARAT CHAPTER on “Transformer Dielectric Fluid Technology” held on 27th May 2020.
- 38) Attended Webinar series on “future trends in academics” conducted by CVM University on 5-6 June 2020.
- 39) Attended training programme on “online teaching and assessment for college teachers” from 9-13 June 2020 organized by CVM University
- 40) Attended one day workshop on “LabVIEW and Multisim” conducted by National Instruments (NI) on 1st August 2020.
- 41) Attended ISTE sponsored webinar on “How to become technopreneur” organized by Electrical Department ADIT on 20/08/2020.

- 42) Attended 3 days FDP from 3-5 September 2020 on "Simulation of Electric Machine's using ANSYS Electromagnetic Software and its Applications in Electric Vehicle" organized by BharatiVidyapeeth College of Engineering, Pune in association with EntupleTechnologies Pvt Ltd and IEEE PES- IAS chapter, Pune Section.
- 43) Participated and completed successfully FDP on "Internt of Thiings (IoT)" by Sri Sairam institute of Technology under AICTE Training And Learning (ATAL) Academy between 7 /09/20 to 11/09/20
- 44) Attended one day workshop on "Virtual hands on workshop on power system analysis with ETAP" conducted by Vellor Institute of Technology Chennai on 14th Sep. 2020.
- 45) One week online TEQIP-III Sponsored Online faculty development programme association with IEEE Rajasthan subsection and organized by RTU attended from 15th Sept to 19th Sep 2020 on "Recent Advances in Power Electronics Drive and Renewable Energy".
- 46) Attended a Webinar on "INNOVATION & ENTREPRENEURSHIP" conducted by the Entrepreneurship Development Cell (EDC), Vidya Jyothi Institute of Technology (Autonomous) on 19/09/2020.
- 47) Attended a Webinar on "Teaching Artificial Intelligence with MATLAB" organized by MathWorks on 22/09/2020.
- 48) Attended Short term training course on "Transition in Power Electronics towards Sustainable, Smart and Flexible Micro-Grids" (19th – 23rd October 2020) organized by NIT DELHI.
- 49) Attended 30 days evening webinar series on "Matlab Master Class 2020" organized by IETE Mumbai and Pantech Prolabs India Pvt Ltd from 1/09/20 to 30/09/20.
- 50) Attended 20 days evening webinar series on "AI MASTER CLASS" organized by Andrapradesh State Skill Development Corporation and Pantech Prolabs India Pvt Ltd from 5/010/2020 to 24/10/2020
- 51) Attended 15 days evening webinar series on "Arduino Master Class" organized by Pantech Prolabs India Pvt Ltd from 30/11/2020 to 14/12/2020
- 52) Attended AICTE (ATAL) Sponsored Online STTP on "Electric Vehicles" from 9th to 13th November 2020 organized by Teegala Krishna Reddy Engineering College.
- 53) Attended AICTE (ATAL) Sponsored Online STTP on "Data Analytics for Smart Grid Technology" from 16th to 21st November 2020 organized by St. Joseph institute of technology, Chennai.
- 54) Attended 30 days evening webinar series on "Matlab-Simulink Master Class" organized by Pantech Prolabs India Pvt. Ltd. from 23/11/2020 to 22/12/2020.
- 55) One day webinar attended organized by NITI AYOOG and GTU on " role of a teacher in implementation of new education policy on 11feb2021
- 56) Attended a Webinar of L&T expert on "MV Switchgears, Trends, and Future Scope" on 2.04.21 at ADIT
- 57) Attended Webinar on Earth Testing and Electrical Safety By Sumit Misra of Megger India Pvt Ltd on 06/10/2021

- 58) Attended 30 days (evening webinar series) on “Renewable Energy Master Class” organized by Pantech Prolabs India Pvt. Ltd. in association with APSSDC (Andrapradesh Skill Development Corporation) from 17/10/2021 to 16/11/2021.
- 59) One week ATAL FDP successfully completed on “Artificial Intelligence foundations for power systems from 25/10/21 to 29/10/21.

Certificate skill courses completed:

- (1) A short course on “Learn to design your own solar home system” on 8 June 2020 of Energy Swaraj Foundation
- (2) 5 week Coursera course “ Solar Energy Basics” of State University New York completed in March 2022
- (3) 4 week Coursera course “ Electric Power Systems” of University of Buffalo & State University of New York completed in April 2022
- (4) 5 week Coursera course “ Solar Energy System Design” of State University New York completed in June 2022
- (5) 4 week Coursera course on “ Introduction of IoT and Embedded sensors” of University of California Irvine completed in July 2022
- (6) 5 week Coursera course “ Renewable Power and Electricity Systems” of University of Colorado Boulder completed in August 2022
- (7) 5 week Coursera course “ Renewable Energy Projects” of University of Colorado Boulder completed in September 2022
- (8) 5 week Coursera course “ Renewable Technology and Fundamentals” of University of Colorado Boulder completed in September 2022
- (9) Skill-Lync course of “Introduction of Electrical Vehicles “done on September 15, 2022.

STTP / Workshops / Seminars organized as coordinator:

- 1) GEDA sponsored workshop on “energy conservation” February 26 2007.
- 2) One week national level STTP was organized as Joint secretary between 6th to 10th July 2009 on “ Recent trends in power electronics and its applications in engineering” in ADIT
- 3) Two days hands-on practice ISTE workshop organized on “PSIM and CYME software” on 30-31st January 2017 in ADIT
- 4) Two days IEEE sponsored workshop organized as coordinator on “IoT and Machine Learning” on 26-27 July 2018 in ADIT.
- 5) Organized 2 days FDP on “IoT” under CDC KAIZEN FDP Programme in ADIT on 21-22nd June 2019.
- 6) Organized ADIT USA Alumni Webinar on “GLOBAL POWER GRID” on 30 may2020

- 7) Organized one day workshop on “Trends in Power systems” under IEEE power and energy student chapter ADIT on 23/09/2020 as coordinator.
- 8) Organized AICTE Training and Learning Academy (ATAL) sponsored one week FDP as FDP Coordinator on “ Electric Vehicles: Technologies and Challenges” date from 20 to 24 July 2021
- 9) Organized ADIT IDEA Laboratory one day training for Polytechnic B&B faculties and Students on 24/09/2022

Funded FDP/ Workshop/projects:

- (i) GEDA sponsored (Rs 5000) work shop on Energy conservation in 2007.
- (ii) Two SSIP projects were guided as mentor in year 2018-20 funded by Gujarat Knowledge society (GKS) & SSIP ADIT.
 1. IoT based induction motor monitoring- Rs 19170/-
 2. IoT based smart house control- Rs 2790/-
- (ii) AICTE ATAL grant 0.95Lac received as coordinator for the FDP organized at ADIT from 2—24 July 2021

PhD Guidance: 5 PhD scholars (continue)

- (i) One PhD Scholar registered under title of research work on “Fault diagnosis in DC Microgrid” in GUJARAT TECHNOLOGICAL UNIVERSITY in 2019.
- (ii) 3 PhD Scholars registered PhD in 2020 in Gujarat Technological University with research topic as under:
 - 1) Design and Analysis of 3- Φ High Frequency Solid-State Power Transformer for Future Smart Distribution grid Application
 - 2) Machine Learning Approach for fault detection classification and protection of SPV system
 - 3) Induction motor internal faults diagnosis using soft computing
- (iii) One PhD scholar registered under title of “Optimal Network Reconfiguration model for Distribution System” in CVM University in 2021

Publications:

- 1) Kalpesh Chudasama and Gurang Sharma , “Fiber Reinforced plastic composite: A justified choice as a operating/insulating rod of H.V./ E.H.V Circuit Breaker” , Sardar Patel University journal, Dec 2006.
- 2) Kalpesh Chudasama, “Regulation and Development of Indian Power Sector: An overview” Dec 2006. ADIT Journal of engineering, ISSN 0973 3663. (UGC:43747 before UGC care list)
- 3) Kalpesh Chudasama & Vinod Makwana, “ Fact technologies: An effective power electronic approach to power system” , NSETET 2007, July 2007, pp 1-7, Moradabad, UP, India

- 4) Vinod Makwana and Kalpesh Chudasama, “ Sustainable energy sources and role of technical institutes in India” NSETET 2007, National level symposium, July 2007, pp 1-8, Moradabad, U.P, India
- 5) Vinod Makwana & Kalpesh Chudasama, “Microsoft Excel as a design tool for small scale industries and Laboratory purpose in the field of Power Electronics and Electrical Drives” , Proceedings of the 2008 international conference on modeling, simulation and visualization methods“MSV-2008”, July 2008, Las Vegas, USA, ISBN: 1-60132-081-7., pp. 242-247
- 6) Vinod Makwana, Kalpesh Chudasama, Yogesh Makwana, “Three phase slip ring induction motor drive with slip power control analysis for different load torque using Microsoft Excel as software tool”, Proceedings of the 2008 international conference on modeling, simulation and visualization methods“MSV-2008” , July 2008, Las Vegas, USA, ISBN: 1-60132-081-7, pp. 270-275
- 7) Kalpesh Chudasama and U.J. Patel, “ A simple approach of the numerical relay learning including testing and result analysis, IJ-CA-ETS, Vol.3, Issue 2, pp 71-76, 2011. ISSN: 0974-3596.
- 8) Kalpesh Chudasama, B.M. Patel and H.A.Shah “Practical simulation of power system protection laboratory experiments using construction-wise classified relays, MIT international journal of electrical and instrumentation Engg., vol. 2, No. 1, January. 2012, pp 14-18, ISSN 2230-7656, MIT publications.
- 9) Kalpesh Chudasama, Vinod Makwana and Hitendra Pardasani, “ 3 Phase slip ring induction motor drive with slip power control analysis for different load torque using MATLAB, RTIIEE11 , 22-23 march 2012, National conference on recent trends in Electrical Engineering, SVNIT, Surat, India.
- 10) B.M.patel, Kalpesh Chudasama, H A Shah, “simulation of single phase inverter using psim software for solar P.V. system give constant output voltage at different solar radiation”, International journal of emerging trends in electrical and electronics (ijetee), Volume 4, Issue 1, June 2013, pp. 26-31
- 11) Kalpesh Chudasama and Vipul Shah, “Induction Motor noninvasive fault diagnostic techniques: A Review”, Vol. 1, issue 5, July 2012, pp. 1-7, ISSN 2278-0181.
- 12) Kalpesh Chudasama and Vipul Shah, “ Noninvasive External faults detection of Induction motor using Feedforward Neural Network, Vol. 3, No. 2, June 2013, IJCET, INPRESSCO, USA, pp. 307-315, ISSN 2277-4106.
- 13) Kalpesh Chudasama, Vipul Shah & Shishir Shah (2016) Induction Motor Relaying Scheme for External Faults Detection and Classification Using Subtractive Clustering Based Sugeno Fuzzy Inference System, Electric Power Components and Systems, 44:10, 1149-1162, DOI: [10.1080/15325008.2016.1149255](https://doi.org/10.1080/15325008.2016.1149255), ISSN:1532-5008 (print) (UGC:13479)
- 14) Raj Thummar, Kalpesh Chudasama, Raj Koshiya and Dilp Odedara, “Monitoring of industrial process parameters using LabVIEW”, International journal of current engineering and technology, Vol. 6, No.6, Dec 2016, pp. 2126-2129.
- 15) Maulik Vyas, Kalpesh Chudasama, Manan Bhatt and Bhavin Gohil, “Real time data monitoring of PV solar cell using LabVIEW”, International journal of

- current engineering and technology, Vol.6. No.6, Dec 2016, pp. 2118-2221. Electronic-2277 – 4106, Print-2347 – 5161.
- 16) Khichada Bhavin A, Kalpesh Chudasama, Vyas Darsan, Shiyal Jignesh, "3-phase induction motor parameter monitoring and analysis using LabVIEW", International journal of Electrical Engineering and Technology, Vol.7, issue 6, Nov-Dec, 2016, pp. 81-91. ISSN/ E-ISSN: 0976-6545/0976-6553. (UGC:43685 before UGC care list)
 - 17) Parth Chokshi, Kalpesh Chudasama, Ashok Gohel, Tushar Machhi, "Human and solar hybrid energy generation", International Journal of advanced research in engineering and technology, Vol. 8, issue 2, March-April 2017, pp. 68-75, IAEME, ISSN Print: 0976-6480, ISSN Online: 0976-6499. (UGC:48673 before UGC care list)
 - 18) Nand Sherawala, Kalpesh Chudasama, Deep Mehta, Hardik Rathod, Niraj Sardhara, "Hybrid power generation using solar and wind using GSM technology", International Journal for Research in Engineering Application and Management, Vol.3, issue 11, Feb 2018, IJREM Publishing house, ISSN 2454-9150, pp. 120-125. (UGC:64077 before UGC care list)
 - 19) Sandeep Parmar, Kalpesh Chudasama, Jayesh Vankar, Apurva Gohil, "Monitoring and control of speed of DC motor using LabVIEW environment", International Journal for Research in Engineering Application and Management, Vol 3, issue2, March 2018, pp. 18-22, IJREM Publishing house, ISSN 2454-9150. (UGC:64077 before UGC care list)
 - 20) Surbhi Vyas, Kalpesh Chudasama, Shivansh M, Ronak P, "Monitoring and control of solar based irrigation system using IOT and LabVIEW", International Journal for Research in Engineering Application and Management, Vol4, issue2, May 2018 pp. 133-137. ISSN 2454-9150. (UGC:64077 before UGC care list)
 - 21) Arth Patel, Kalpesh Chudasama, Ravi Patel, Shreyash Patel, "LabVIEW based smart house control", International journal of advanced scientific research and management, Vol 4, issue 2, Feb 2019, pp. 234-238 ISSN 2455-6378. (UGC NO: 63502 before UGC care list)
 - 22) Muskan Vahora, Kalpesh Chudasama, Neel Patel, Shalini Pandey, "IoT based smart irrigation system, IRJET, Vol. 7, issue 4, April 2020, pp 1914-1920 e-ISSN:2395-0056, p-ISSN: 2395-0072.
 - 23) Chauhan Shivani, Ashish Shah, Kalpesh Chudasama, "A Review on AC Microgrid and its Protection", Compliance engineering journal, Vol. 11, issue 3, April 2020, ISSN NO: 0890-3577.
 - 24) A. P. Shah and K. J. Chudasama, "Selection of LVDC Microgrid Component for Efficient Microgrid Performance," 2021 IEEE International Conference on Electrical, Computer and Energy Technologies (ICECET), Dec 9-10, 2021, CapTown-South Africa., pp. 1-6, doi: 10.1109/ICECET52533.2021.9698745.
 - 25) Mohit Faldu, Kalpesh Chudasama, Dhruvit Patel, Ashish Shah. "IOT Controlled Smart Home Automation System. Trends in Electrical Engineering. Published March 10, 2022; 11(3): 8–13pp, ISSN: 2321-4260 (Print) ISSN: 2249-4774 (Online)

- 26) M. R. Patel, A. P. Shah, K. J. Chudasama and G. J. Jadhav, "A Review of EV Converters Performance during V2G/G2V mode of Operation," *2022 3rd International Conference for Emerging Technology (INCET)*, 2022, pp. 1-7, doi: 10.1109/INCET54531.2022.9824330.
- 27) Vimal Vania & Kalepsh Chudasama, "Induction Motor Stator, Rotor & Bearing Faults: A Review", PiCET conference, 20-21May, 2022, Vadodara. (Scopus & Web of Science indexed)
- 28) Solanki B. Jayrajsinh, Chudasama J. Kalpeshkumar, "Concepts, Configurations and Challenges of Solid State Transformer: A Review", *Recent Advances in Electrical & Electronic Engineering* 1st Sep 2022; Vol 15(5), pp346-367, Bentham Science Publisher
<https://dx.doi.org/10.2174/2352096515666220707120302>. print ISSN: 2352-0965, Online ISSN: 2352-0965

Article Published in Magazine/News letter

- (1) Kalpesh Chudasama & Ashish Shah, "Recent advancements in Microgrid technology" in "Society of Power Engineers" Newsletter, October 2021.

Expert lectures/ Laboratory sessions conducted:

1. An expert lecture on "Power System Protection" and also Laboratory session was conducted for Sigma Institute of Technology, Vadodara at ADIT in 2006.
2. An expert lecture delivered on "Fact technologies in power system" in STTP Recent trends in power electronics and its applications, 6th July 2009.
3. Power system protection laboratory sessions conducted for "Parul Institute of Engg. and Technology" final year EE students on 26th August 2006.
4. One laboratory session was conducted in one week (6-10July) national level STTP on "Recent trends in power electronics and its applications in Engg. in July 2009.
5. An expert talk delivered on "Sensors and software based data acquisition systems" at Mechatronics department on 21 Feb 2018, GCET V.V. Nagar
6. Two expert lectures delivered on "Introduction to Artificial Neural Network" and "Exploring ANN using MATLAB" at IE sponsored one day seminar on 10th March 2018 at ADIT.
7. An Expert lecture delivered on "Artificial Neural Network Fundamentals" in two days IE sponsored seminar OPTIMIZATION AND PREDICTION OF PARAMETER USING ANN AND GA organized during 20-21 July 2018.
8. Two expert lecture delivered in IEEE sponsored workshop "IoT and M/C Learning" at ADIT between 26-27 July 2018 on "ANN: Perceptron to Multilayer Perceptron Neural Network" and "Artificial Neural Network application

