|  |  |  |
| --- | --- | --- |
| Qipeng Gong | | 142 Beacon Hill, Beaconsfield, QC, H9W 1T1 |
|  | | (514) 2980627(cell) (514) 6379156 qi.gong@mail.mcgill.ca |
| OBJECTIVE | | |
|  | Eminently suited to undertake projects on research and development regarding machine learning | |
| Summary | | |
|  | * Over 10 years of scientific research on processing data, including statistical modelling, analysis and estimation. * Rich knowledge of machine learning algorithms: decision tree, neural networks, support vector machine (SVM), linear regression, HMM, GMM, K-means clustering, etc. * Worked with machine learning algorithms in the projects for my Master’s degree. * Experience on automatic speech recognition. * Hands-on SQL skill (MySQL and Oracle): create table, query, insert, delete, update, etc. | |
| PROFESSIONAL SKILLS | | |
|  | |  |  | | --- | --- | | Operating Systems: | Linux, Solaris, Windows family | | Programming languages: | Matlab, C, C++, Shell scripts, Python | | Protocols: | IP, TCP, UDP, Ethernet, RTP, RTCP, VoIP, SIP, OSPF, BGP | | Standards: | G.711, G.712, G.729, AAC, AMR, GSM-EFR, G.107, P.862 | | Others: | MySQL, MS-Office, Latex | | |
| WORKING EXPERIENCE | | |
|  | Research Associate 2013 – 2014  McGill University, Montreal, Quebec, Canada   * **Second statistic moments estimation based on exponential moving average**   Cooperated with the sponsor company – Microsemi, designed a noise reduction algorithm by analyzing and estimating speech spectrum. The estimate is based on linearly recursive smoothing of periodograms and minima statistics tracking.  Improved perceived quality has been achieved for MVDR applications. The paper on our ideas and achievements appeared at Asilomar.  **Key Words**: noise reduction, Microphone Array, power spectral density (PSD), conditional speech presence probability  Research Assistant 2006 – 2013  McGill University, Montreal, Quebec, Canada   * **Data-driven estimation of probability density function (PDF) using EM**   Based on Gaussian Mixture Model, implemented an algorithm to estimate PDF of a given set of data. Expectation Maximization (EM) is used as the optimization method.  **Key Words:** GMM, EM, optimization   * **Distribution estimation for network delays statistically by using histogram and Weibull**   Developed and implemented an algorithm to estimated network delay distributions by using histogram and statistical model method – Weibull.  **Key Words:** histogram, statistical model   * **Statistical modeling for network packet loss using Markov State Processing**   Based on Markov state processing, implement a statistics model for packet loss of networks.  **Key Words:** Statistical modeling, Markove State Processing   * **Design and implementation of a content based routing network for load balancing**   Using C, designed and implemented a content based routing network, which performs TCP splicing to reveal the content and allocating the appropriate server (e.g. running HTTP) for particular content in order to distribute the load. The utilization of the servers is improved.  **Key Words**: C, Content routing, TCP splicing, Load balancer, Equally Spread Current Execution Algorithm, code integration and Linux programming   * **Pitch detector using Cepstrum Analysis**   Developed a pitch detector for speech signals using Cepstrum analysis, assuming that the signals have regularly-spaced frequency partials.  **Key Words:** pitch, fundamental frequency , Cepstrum analysis   * **Packet-based Time-warping for VoIP applications**   Implemented a time-warping algorithm to scale speech segments on basis of one packet (20 ms) in order to provide adaptive buffer depth for the following packets in VoIP applications.  **Key Words**: VoIP, RTP, UDP, timestamp, time scale modification, conversational delay, PESQ, E-model  Teaching Assistant 2005 – 2006  McGill University, Montreal, Quebec, Canada   * **Supervised, tutored and demonstrated students on DSP labs, including filter design, quantization, transformation, etc.**   Systems Administrator 1998 – 2002  Data Communication Branch Bureau, Harbin Telecom Company, Harbin, China   * **Configured, troubleshot, and maintained network servers hardware and software (Sun Servers, Solaris, Linux, and Windows).** * **Configured, troubleshot and maintained routers (Cisco, Juniper) and switches (Cisco, Extreme).**   Data Communication Network Technician 1997 – 1998  Data Communication Branch Bureau, Harbin Telecom Company, Harbin, China   * **Configured and maintained data communication networks, such as Frame Relay, and DDN.** | |
| EDUCATION | | |
|  | Ph.D. 2006 – 2013  *McGill University*, Montreal, Canada  Thesis : Playout Buffering for Conversational VoIP  Master of Engineering 2004 – 2005  *McGill University*, Montreal, Canada  Cumulative Grade Point Average (GPA): 3.82 / 4.0  (transferred to Ph.D. at the beginning of 2006)  Related Course: **ASR (Automatic Speech Recognition)** Grade: **A**  Master of Philosophy 2002 – 2004  *University of Newcastle*, Newcastle upon Tyne, UK  Thesis : Nonlinear Blind Source Separation in Frame of Information Theory by Neural Networks  Developed novel unsupervised algorithms to extract the nonlinear features from mixed signals by training neural networks (MLP, RBF and the hybrid of MLP and RBF).  **Key Words:** machine learning, neural Networks, feature extraction  Bachelor of Engineering 1993 – 1997  Harbin Engineering University, Harbin, China | |
| PUBLICATIONS | | |
|  | * “Noise Power Spectral Density Matrix Estimation Based on Improved IMCRA”, *Asilomar* (Pacific Grove, CA), Nov. 2014. * “Single and Multi-microphone Techniques of Speech Enhancement for Voice Communications under Adverse Conditions – Part I”, *Technical Report,* Feb. 2012. * "Improved Quality for Conversational VoIP using Path Diversity ", to be appeared in *Proc. Interspeech* (Florence, Italy), Aug. 2011. * "Quality-Based Playout Buffering with FEC for Conversational VoIP", *Proc. Interspeech* (Makuhari, Japan), pp. 2402-2405, Sept. 2010. * "A New Optimum Jitter Protection for Conversational VoIP", *Proc. Int. Conf. Wireless Commun., Signal Processing* (Nanjing, China), pp. 1-5, Nov. 2009. | |
|  | Other experience | |
|  | Reviewer 2004 – present  IEE Electronics Letters  IEE Proceedings Circuits, Devices & Systems  International Journal of Communication Systems  Elsevier  *IEEE International Conference on Digital Signal Processing* | |
|  | REFEREES | |
|  | Available upon request. | |